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BRITISH MUSEUM
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NATURAL HISTORY.

# Lincolnshire Naturalists' Union Transactions.

**1932**

*Edited by*
*ARTHUR SMITH,*
*F.L.S., F.E.S.*

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# Lincolnshire Naturalists' Union.

*Founded June 12th, 1893.*

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# STATEMENT OF ACCOUNT from January 1st to December 31st, 1932.

## GENERAL FUND.

| RECEIPTS. | £ | s. | d. | PAYMENTS. | £ | s. | d. |
|---|---|---|---|---|---|---|---|
| Balance in Bank, 1 January 1932 ... ... | 19 | 0 | 4 | Printer's Account for Notices of Meetings, Stationery, etc. ... ... ... ... | 2 | 19 | 6 |
| Members' Subscriptions ... ... ... ... | 31 | 15 | 0 | Postages and small payments ... ... ... | 5 | 2 | 0 |
| Bank Interest ... ... ... ... ... | 0 | 9 | 9 | Grant to Publication Fund ... ... ... | 25 | 18 | 0 |
| | | | | Balance in Bank, 31 December 1932 ... ... | 17 | 5 | 7 |
| | £51 | 5 | 1 | | £51 | 5 | 1 |

## PUBLICATION FUND.

| | £ | s. | d. | | £ | s. | d. |
|---|---|---|---|---|---|---|---|
| Donations to Publication Fund ... ... ... | 2 | 14 | 0 | Printer's Account for "Transactions" ... ... | 31 | 4 | 0 |
| Sale of "Transactions" ... ... ... ... | 2 | 12 | 0 | | | | |
| Grant from General Fund ... ... ... | 25 | 18 | 0 | | | | |
| | £31 | 4 | 0 | | £31 | 4 | 0 |

## SEPARATE ACCOUNT.

*Life Members' Subscriptions invested in P.O. Savings Bank.*

| | £ | s. | d. |
|---|---|---|---|
| Amount shown on Balance Sheet for 1931 ... ... | 77 | 1 | 1 |
| Interest for the year 1931 ... ... ... ... | 1 | 18 | 6 |
| | £78 | 19 | 7 |

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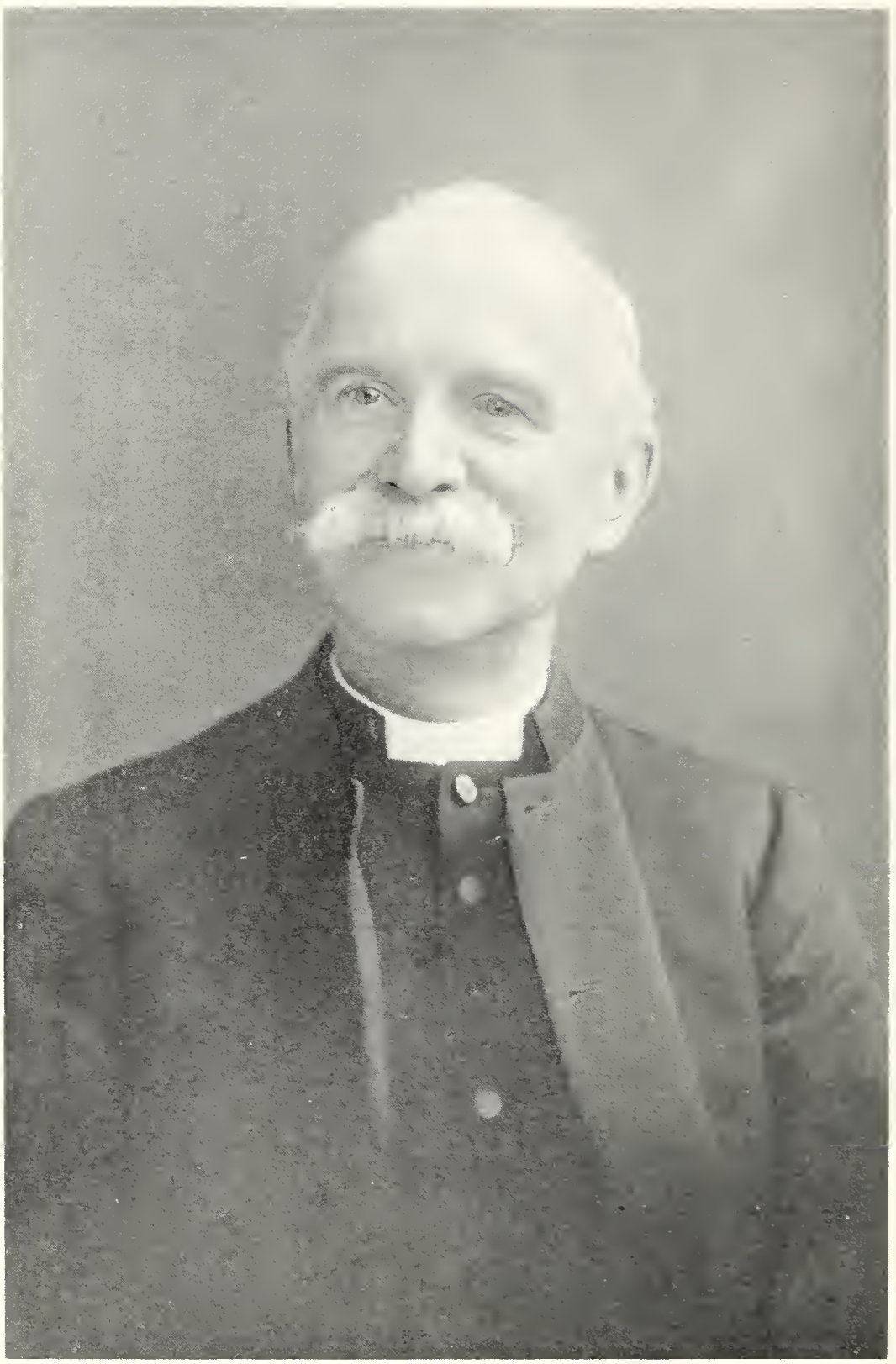

THE REV. W. WRIGHT MASON B.A.

# In Memoriam

## REV. WILLIAM WRIGHT MASON.

The Lincolnshire Naturalists' Union has sustained a great loss in the death of the Rev. W. Wright Mason, B.A., which occurred at Louth, on the 11th August 1932.

Mr. Mason was born at Wainfleet St. Mary, on 31st October 1853, and was thus in his seventy-ninth year. He was educated at Loughborough Grammar School, and at Clare College, Cambridge, where he took the B.A. degree in 1876. After holding curacies in Yorkshire and in Kent, he became Rector of Leverton in this county, where he remained for sixteen years. During those years he married, and there the first of his three children was born, but some years afterwards Mrs. Mason died at an early age. In 1894, feeling anxious for work in a populous town, he exchanged with the Vicar of St. Mary's, Bootle; and after having been there for nineteen years, he further exchanged with the Rector of Melmerby, in Cumberland, a small but lovely parish among the fells. On going there he re-married; but was destined long afterwards again to suffer bereavement, though not until his last year. In 1924 he became Rector of Salmonby, and thus returned to Lincs. Five years later he retired, and after residing near Oxford and in Essex, finally came back to this county.

Mr. Mason was a hard-working clergyman, with a profound knowledge of many subjects including botany, and it was of course as a botanist that he was best known to us. But it is impossible in this place to do justice to his achievements even in this field. He had long been a member of the Botanical Society of the British Isles—a friend and correspondent of the late Dr. G. C. Druce—who in 1925 named a form of the Hawthorn *(Crataegus monogyna)* var. *Masonii* after him. This Hawthorn had been sent to the Society from Melmerby, whereabouts also Mr. Mason discovered *Myosotis brevifolia* (one

of the Water Forget-me-nots) and showed it to Mr. C. E. Salmon, who described it as a new species. Afterwards at Salmonby he found and submitted to Dr. Druce *Viola arenicola* —one of the *Viola silvestris* (Wood Violet) allies—which Mrs. Gregory, in "British Violets", 1912, had already predicted would be detected in this country. These discoveries alone sufficiently demonstrate Mr. Mason's keen eye for obscure and difficult things, micro-species, and varieties. He joined this Union in its early years, and on more than one occasion was invited to become President, but could never be persuaded to do so. He made a point of attending the field-meetings—being present sometimes during his residence at Bootle—and acting then as recorder both for flowering plants and mosses. In 1925 he invited the Union to Salmonby, and there after a delightful round when among other things about one hundred and twenty species of plants were noted, he with Mrs. Mason entertained the party to tea, and reviewed the activities of the day in his very charming manner. In 1909 when the Rev. E. A. Woodruffe-Peacock published his well-known "Check-List of Lincolnshire Plants", he dedicated it to Mr. Mason, whom he described as the most consistent of the botanists of the county. After Mr. Peacock's death in 1922 Mr. Mason recognized the desirability of continuing his friend's botanical recordership, and began at once to compile a revised and augmented census, which he kept up to the last. Shortly before his death he arranged that his registers should become the Union's property, and they are now in the City and County Museum—together with his manuscript "Records of the English Flora", "Field Botanist's Diary", and Salmonby records—in the Secretary's care.

Our botanists have lost a diligent and enthusiastic colleague, and this Union one of the best of friends.

A.S.

# Presidential Address

TO THE

# Lincolnshire Naturalists' Union

Delivered at Lincoln, November 24th, 1932,

BY

A. Roebuck, N.D.A., F.E.S.

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## MEASUREMENTS IN NATURE: OR THE TOLL OF INSECT AND OTHER ANIMAL PESTS ON THE FARMS OF LINDSEY DURING 1932.

The general work of a County Natural History Society in its early days appears to have always been the preparation of lists of species occurring in the County. For a time, therefore, work appeared to make rapid progress. Such was the case in this County until we are now in possession of exhaustive lists for the more popular groups, such as Flowering Plants, Mosses, Lepidoptera, Coleoptera, etc. There are only the less popular and more difficult groups left for those enthusiastic enough to take up their compilation. While such work is valuable, I would suggest we ought not to over-rate its importance. I have been much struck by the fact that a completed list might be rather discouraging to the ardent botanist, lepidopterist, etc., of to-day. One is tempted to spend no end of time endeavouring to find some great rarity. It is very striking how one is moved to ecstacy by a rarity such as the Lizard Orchis, whereas one resents an intruder such as *Elodea canadensis*. Surely, we must admit that in the study of Nature in the County, it is the common things that matter, rarities are of little importance. They are of interest, especially if we can find out why they have failed to keep pace with the changes that are ever going on around us.

When you come to think of it, a list shows us nothing about a plant. For example, over twenty years ago there appeared thousands of *Hyocyamus niger* plants in Grasby. So far as I am aware they have not been seen since. A list just gives it as occurring there. When will it appear there again? About the same time at Caistor, quite near the town, I photographed one field full of Ragweed. The next fields were quite free from it. This year I went to find the point at which I had taken the photograph and to my surprise there was not a solitary plant in the field. The next field was now almost covered with it. The list can only show that Ragweed is found at Caistor. It is the study of problems such as these which will give us real progress. I believe, therefore, that a list should be but the beginning of studies, by itself it leads nowhere. Nature is ever changing and as a minimum a list should show such changes. The ideal way of using them would seem to be to make them up each year. As this is impracticable, then make them up as rapidly as possible, avoiding entering any species not found, old records really only mean that the species does not exist. Then repeat the list and by comparision one might find what changes in the flora or fauna are taking place. The common things really make up our Country-side and it is the study of these which matters most. Moreover, there is a very negligible portion of our county which is not affected by cultivation and other human activities, so that we must consider fields and gardens just as much as we do woodlands and heaths.

Underlying the terms common and rare there is expressed the idea of measurement, however crude. A balance in Nature definitely means a certain quantity of this species and that, kept restricted to those numbers by certain measurable means, a change is brought about by an increase in the quantity of one or other species with the possible diminution of others. It seems, therefore, to be more and more necessary for us, if we intend to make real progress, to attempt to express in numbers our various Natural History studies. Here let me quote Lord Kelvin: "When you can measure what you are

speaking about and express it in numbers, you know something about it, but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely in your thoughts advanced to the stage of science". Side by side with measurement will necessarily come experiments, however simple. It must not be forgotten that it was the series of simple experiments made by the monk Gregor Mendel and reported to the Natural History Society at Brunn, that laid the foundation of our modern scientific methods in plant and animal breeding.

For some years I have been endeavouring to find some means of measuring the effect of the various insect pests on our cultivated crops. I wanted to obtain, with some degree of accuracy, the amount of loss suffered through their depredations and by studying the pests individually to be able to place them in the order of their importance. The problem is complex. The caterpillar of the moth *Hadena basilinea* eats the grains of wheat in the ear; the caterpillar of the moth *Cydia nigricana* eats the seeds of peas in the pod; these are examples of the easy types to study. By examining sufficient samples, one can obtain the proportionate loss. Some pests, such as slugs, eat the young plants completely. It is possible with patience to find the proportion of plants lost, but in some cases there is a counterbalancing increased growth of those plants left, owing to more air space and food stuffs. It is not safe therefore to assume that the loss is in direct proportion to the plants destroyed. In addition, there are still more difficult pests to consider. For example, so many of them eat a portion of the leaf surface. How does this affect the yield of grain or roots? It was therefore necessary to begin by making some experiments, examples of which I will now give.

Experiment on Loss of Leaf Surface in Cereals.

In this experiment the effect of insects in destroying the foliage on wheat plants, after they had flowered, was imitated. In one series the whole of the leaves were cut off and in another series each leaf had half its surface cut off. A number

of plants were treated in this way at weekly intervals up to harvest time. The ears were harvested separately and the produce weighed. A batch of ears from uncut plants were harvested and weighed for comparison.

Cutting the leaves off six weeks before harvest caused a loss of 35 % of the crop, while cutting half the leaf surface away caused a loss of 19 % of the crop. The treatment on successive weeks, 5, 4, 3, 2 and 1 week before harvest, produced correspondingly smaller and directly proportional crop losses.

As an example of the use of this, may be mentioned an attack of the fly *Domomyza ambigua* on a field of wheat at Messingham during 1932 :—

| | |
|---|---|
| Number of plants attacked | 10 % |
| Leaf Surface of plant lost | 2 % |
| Leaf Surface of field lost | 0·2 % |

The attack extended over the whole period between flowering and harvest time. The loss of crop for total loss of leaf for this period would be 19 %. The loss of crop due to this pest ·038 %. Given a yield of 40 bushels per acre on the 20 acres, the loss due to this insect would be ·3 bushels.

It must not be assumed that such accuracy can be obtained, but it illustrates that the fly is a pest of no great importance.

Experiments on Loss of Leaf Surface in Root Crops.

In these tests half the leaf surface was cut away at intervals during the growing season, from thinning time to lifting. At the end of the season the roots were weighed and compared with an equivalent number of roots from uncut plants.

The loss of half the leaf surface at the end of May caused a loss of crop of 17 % in Mangolds and 25 % in Sugar Beet. The losses became proportionally smaller as the cuttings were made later in the year until the middle of October when there was no loss.

Swedes cut at the end of June suffered a loss of crop of 30 %. This loss became smaller as the cutting was delayed until there was no loss from cutting half the leaves off after the

end of October.

Experiment on Destroying Seedling Wheat Plants.

When the young plants appear on a good field of wheat they are very numerous and it is possible, under certain circumstances, to lose many plants and yet have no lessened crop. The plants left are capable of better growth and in certain instances tiller better so that the same number of ears are obtained.

In considering the effect of such pests as slugs, wireworms, leatherjackets, and cutworms, there are two extreme cases. In one case the plants may be uniformly thinned out, e.g. every fourth plant or every tenth, etc., and in the second case whole patches may be denuded of plants.

In these tests there was practically no loss of crop, under the system of uniform thinning out, until 50 % of the plants had been destroyed. Then the loss of crop was 5 %. As more plants are removed, the crop falls heavily and in direct proportion to the plants removed. Thus 75 % loss of plants produced a 50 % diminution of crop.

In the case of plants destroyed in patches the loss of crop is almost directly proportional to the plants lost. Thus 50 % loss of plants produced a 45 % loss of crop. A very good illustration of this type of damage occurred during 1932 at Atterby, where the wheat on one part of a field was completely destroyed by leatherjackets.

Results of the Experiments.

During the year several thousand acres of crops have been examined and the presence of particular pests noted, together with the intensities of their attacks. By a combination of the use of field observations coupled with graphs from these experiments, it has been possible to get the following data concerning the losses due to pests on the main farm crops in the Lindsey division of the county:—

Pests of the Wheat Crop.

| | | Percentage of crop lost. |
|---|---|---|
| 1. | Slugs (chiefly *Agriolimax agrestis*) ... ... | 4.00 |
| 2. | Wireworms (*Agriotes obscurus*, etc.) ... ... | 2.00 |

| | | |
|---|---|---|
| 3. | Cutworms (*Agrotis segetum*, etc.) ... ... | 1.00 |
| 4. | Leatherjackets (*Tipula paludosa*, etc.) ... ... | 3.00 |
| 5. | Wheat Bulb Fly (*Hylemyia coarctata*) ... ... | 0.02 |
| 6. | Midges and Thrips (*Contarinia*, *Sitodiplosis*, *Limothrips*) | 0.03 |
| 7. | Aphis (*Macrosiphum granarium*) ... ... ... | 0.02 |
| 8. | *Hadena basilinea* and Sparrows eating grain ... | 0.01 |
| 9. | Leaf Miners (*Agromyza*, *Domomyza*), Sawflies (*Dolerus*, etc.) and Ground Beetles ... ... | 0.02 |
| 10. | Moles ... ... .. ... ... ... | 0.05 |
| 11. | Birds (Larks, Pink Footed Geese, Jackdaws, etc.) | 1.00 |
| | | 11.15 |

They altogether represent a loss of 11.15 % of crop. As 80935 acres of wheat are grown, this is equivalent to a total loss of crop on 9024 acres.

Pests of the Oat Crop.

| | | Percentage of crop lost. |
|---|---|---|
| 1. | Slugs (*Agriolimax agrestis*) ... ... ... | 3.00 |
| 2. | Wireworms (*Agriotes obscurus*) ... ... ... | 2.00 |
| 3. | Leatherjackets (*Tipula paludosa*) ... ... | 2.00 |
| 4. | Cutworms (*Agrotis segetum*) ... ... ... | .05 |
| 5. | Frit Fly (*Oscinella* frit) ... ... ... ... | 1.00 |
| 6. | Aphis ... ... ... ... ... ... | .05 |
| 7. | Birds ... ... ... ... ... ... | .05 |
| 8. | Moles ... ... ... ... .. ... | .05 |
| 9. | Ground Beetles (*Pterostichus* sp.) ... ... | .02 |
| 10. | Caterpillars (*Miana strigilis*, etc.), Beetle (*Lema melanopa*) and Thrips (*Limothrips*) ... ... | .01 |
| | | 8.23 |

The area sown is 64331 acres. A loss of 8.23 % crop is therefore equivalent to a loss of crop on 5294 acres.

Pests of the Barley Crop.

| | | Percentage of crop lost. |
|---|---|---|
| 1. | Slugs and Snails (*Agriolimax*, *Helix*) ... ... | 3.00 |
| 2. | Wireworms ... ... ... ... ... | 2.00 |
| 3. | Cutworms ... ... ... ... ... | 1.00 |

| | | |
|---|---|---|
| 4. | Leatherjackets ... ... ... ... ... | 1.00 |
| 5. | Gout Fly (*Chlorops taeniopus*) ... ... ... | .50 |
| 6. | Birds ... ... ... ... ... ... | .05 |
| 7. | Thrips and Midges ... ... ... ... | .05 |
| 8. | Moles ... ... ... ... ... ... | .05 |
| 9. | Plant Bugs (*Lygus*, etc.) and Ground Beetles | .05 |
| | | 7.70 |

The total area under this crop is 85457 acres. A loss of 7.7 % is equivalent to a total loss of crop on 6535 acres.

Pests of the Rye Crop.

| | | Percentage of crop lost. |
|---|---|---|
| 1. | Slugs (*Agriolimax*) ... ... ... ... | 2.00 |
| 2. | Wireworms (*Agriotes*) ... ... ... ... | 3.00 |
| 3. | Cutworms (*Agrotis*) ... ... ... ... | .05 |
| 4. | Leatherjackets (*Tipula*) ... ... ... ... | .25 |
| 5. | Birds ... ... ... ... ... ... | .05 |
| 6. | Moles ... ... ... ... ... ... | .10 |
| 7. | Beetles (*Pterostichus*, etc.) ... ... ... | .15 |
| | | 5.60 |

There are 2372 acres of Rye grown. A loss of 5.6 % is equivalent to a total loss of crop on 133 acres.

Mixed Corn Crops totaling 1849 acres lost 8.5 % through pest attack, or an equivalent of a loss of crop on 157 acres.

Pests of the Pea Crop.

| | | Percentage of crop lost. |
|---|---|---|
| 1. | Slugs and Snails ... ... ... ... | 7.00 |
| 2. | Wireworms ... ... ... ... ... | 2.00 |
| 3. | Leatherjackets ... ... ... ... ... | 1.00 |
| 4. | Weevil (*Sitona lineatus*) ... ... ... ... | .10 |
| 5. | Pea Moth (*Cydia nigricana*) ... ... ... | 1.00 |
| 6. | Thrips (*Frankliniella robusta*) ... ... ... | .50 |
| 7. | Midge (*Contarinia pisi*) ... ... ... ... | .50 |
| 8. | Beetle (*Bruchus pisi*) ... ... ... | .05 |
| 9. | Aphis (*Macrosiphum pisi*) ... ... | |
| 10. | Leaf Miner (*Phytomyza pisi*) ... ... | |

| | | |
|---|---|---|
| 11. | Millepedes (*Blanjulus guttulatus*) ... ... | .05 |
| 12. | Birds and Voles ... ... ... ... ... | 1.00 |
| | | 13.20 |

There are 17934 acres grown. The loss of 13.2 % is equivalent to a loss of crop on 2977 acres.

Pests of the Bean Crop.

| | | Percentage of crop lost. |
|---|---|---|
| 1. | Slugs ... ... ... ... ... ... | 4.00 |
| 2. | Wireworms ... ... ... ... ... | .05 |
| 3. | Cutworms... ... ... ... ... ... | 1.00 |
| 4. | Leatherjackets ... ... ... ... ... | 1.00 |
| 5. | Ground Beetles (*Pterostichus* sp.) ... ... | 1.00 |
| 6. | Weevil (*Sitona lineatus*) ... ... ... ... | .50 |
| 7. | Black Fly (*Aphis rumicis*) ... ... ... | 2.00 |
| 8. | Voles and Birds ... .. ... ... ... | .50 |
| 9. | Thrips ... ... ... ... ... ... | .05 |
| 10. | Beetle (*Bruchus rufimanus*) ... ... | .01 |
| 11. | Eelworm (*Tylenchus dipsaci*) ... ... | |
| 12. | Millepedes ... ... ... ... | |
| | | 10.11 |

There are 10677 acres grown. The loss of 10.11 % is eqvivalent to the loss of crop on 1079 acres.

Pests of the Potato Crop.

| | | Percentage loss of crop. |
|---|---|---|
| 1. | Slugs (*Agriolimax, Limax, and Amalia*) ... | 3.50 |
| 2. | Wireworms ... ... ... ... ... | 2.50 |
| 3. | Cutworms (*Agrotis, Triphaena pronuba*, and *Hadena micacea*)... ... ... ... ... | 1.50 |
| 4. | Leatherjackets ... ... ... ... ... | 2.50 |
| 5. | Eelworms (*Heterodera* and *Tylenchus*) ... ... | .50 |
| 6. | Voles, Rats, Birds ... ... ... ... | .25 |
| 7. | Millepedes (*Blanjulus*) ... ... ... ... | .05 |
| 8. | Aphides (chiefly *Myzus persicae*), Capsids (*Lygus pabulinus* and *Calocoris norvegicus*), Leaf Hoppers (*Eupteryx auratus*), Flea Beetle (*Psylliodes affinis*) ... ... ... ... | .15 |
| | | 10.95 |

There are 35440 acres grown. The loss of 10.95 % is equivalent to a loss of crop on 3880 acres.

Pests of Turnips, Swedes, Cabbages, Kale.

| | | Percentage loss of crop. |
|---|---|---|
| 1. | Slugs and Snails (*Agriolimax*, *Limax*, and *Helix* species) ... ... ... ... ... | 3.50 |
| 2. | Wireworms ... ... ... ... ... | 1.00 |
| 3. | Cutworms (*Triphaena*, *Agrostis segetum*, *A. exclamationis*, *Mamestra brassicae*) ... ... ... | 1.00 |
| 4. | Leatherjackets ... ... ... ... ... | 2.00 |
| 5. | Flea Beetles (*Phyllotreta undulata*, etc.) ... | 1.50 |
| 6. | Diamond Back Moth (*Plutella maculipennis*) | .01 |
| 7. | Turnip Mud Beetle (*Helophorus rugosus*) | |
| 8. | *Meligethes aeneus* ... ... ... ... | |
| 9. | *Ceuthorrhynchus quadridens* ... ... | |
| 10. | *Psylliodes chrysocephala* ... ... ... | |
| 11. | Cabbage Root Fly (*Chortophila brassicae*) ... | 1.00 |
| 12. | Gall Weevil (*Ceuthorrhynchus pleurostigma*) ... | .05 |
| 13. | Aphides (chiefly *Aphis brassicae*) ... ... | .05 |
| 14. | Leaf Miner (*Agromyza nigripes*) ... ... | .005 |
| 15. | White Butterflies (*Pieris* sp.) ... ... ... | .05 |
| 16. | Swede Midge (*Contarinia nasturtii*) ... ... | .01 |
| 17. | Birds (Woodpigeons, Finches, etc.) ... ... | .33 |
| | | 10.505 |

There are 46875 acres grown. A loss of 10.505 % is equivalent to a total loss of crop on 4924 acres.

Pests of the Mangold and Sugar Beet Crops.

| | | Percentage loss of crops. |
|---|---|---|
| 1. | Slugs ... ... ... ... ... ... | 2.00 |
| 2. | Wireworms ... ... ... ... ... | .25 |
| 3. | Cutworms ... ... ... ... ... | 2.00 |
| 4. | Leatherjackets ... ... ... ... ... | 2.00 |
| 5. | Mangold Fly (*Pegomyia hyoscyami*) ... ... | 1.00 |
| 6. | Aphis (*Aphis rumicis*) ... ... ... ... | .02 |
| 7. | Pigmy Mangold Beetle (*Atomaria linearis*) | .02 |
| 8. | Springtails (*Bourletiella hortensis*) ... | |
| 9. | Plant Bugs (*Lygus pabulinus*) ... ... | .02 |
| 10. | Ground Beetles (*Pterostichus* sp.) ... ... | .05 |

| | | |
|---|---|---|
| 11. | Cockchafers *(Melolontha)* ... ... | .03 |
| 12. | Carrion Beetles *(Silpha* sp.) ... ... | |
| 13. | Flea Beetle *(Plectroscelis)* ... ... | |
| 14. | Millepedes *(Blanjulus pulchellus)* ... | |
| 15. | Rabbits and Hares ... ... ... ... | .10 |
| | | 7·49 |

There are 27902 acres grown. The loss of 7.49 % is equivalent to a loss of crop on 2090 acres.

## Pests of the Clover Crop.

| | | Percentage loss of crop. |
|---|---|---|
| 1. | Slugs and Snails *(Agriolimax, Arion, Helix)* ... | 2.50 |
| 2. | Wireworms ... ... ... ... ... | .05 |
| 3. | Leatherjackets and Cutworms ... ... ... | .50 |
| 4. | Weevils *(Sitona* sp.) ... ... ... ... | .01 |
| 5. | Springtails *(Bourletiella viridis)* ... ... ... | 1.00 |
| 6. | Midges *(Amblyspatha ormerodi* and *Dasyneura trifolii)* ... ... ... ... ... ... | .01 |
| 7. | Birds (Pink Footed Geese, Woodpigeons, Turtledoves, etc.) ... ... ... ... | .01 |
| 8. | *Hypera punctata, Apion trifolii,* Eelworm *(Tylenchus)* ... ... ... ... ... ... | .01 |
| | | 4.09 |

There are 104829 acres of clover grown, mixed with grass. A loss of 4.09 % is equivalent to a loss of crop on 4287 acres.

## Pests of Grassland.

| | | Percentage of crop. |
|---|---|---|
| 1. | Slugs *(Agriolimax, Arion,* and *Limax)* and Snails *(Helix* species) ... ... ... ... | 5.00 |
| 2. | Wireworms and Leatherjackets ... ... | .05 |
| 3. | Caterpillars *(Hepialus humuli, Triphaena pronuba, Miana, Xylophasia, etc.)* ... .. ... | .05 |
| 4. | Beetles *(Melolontha, Phyllopertha,* and various Carabids) ... ... ... ... ... | .005 |
| 5. | Ants *(Acanthomyops flavus)* ... ... ... | .03 |
| 6. | Moles ... ... ... ... ... ... | .50 |
| 7. | Frit Fly (*Oscinella* frit) ... ... ... ... | .02 |
| 8. | Aphids (*Myzus festucae,* etc.) ... ... ... | .001 |

| | | |
|---|---|---|
| 9. | Birds (Woodpigeons, etc.) ... ... ... | .001 |
| 10. | Rabbits ... ... ... ... ... ... | .50 |
| | | 6.157 |

There are 337,928 acres under grass. A loss of 6.157 % is equivalent to a loss of crop on 20,806 acres.

Summary of the above results.

| | Acreage grown (1931). | Acres lost. |
|---|---|---|
| Wheat ... ... ... | 80,935 | 9,024 |
| Oats ... ... ... | 64,331 | 5,294 |
| Barley ... ... ... | 85,457 | 6,535 |
| Rye ... ... ... | 2,372 | 133 |
| Mixed Corn ... ... ... | 1,849 | 157 |
| Peas ... ... ... | 17,934 | 2,977 |
| Beans .. ... ... | 10,677 | 1,079 |
| Potatoes ... ... ... | 35,440 | 3,880 |
| Turnips, Swedes, etc. ... | 46,876 | 4,924 |
| Mangolds, Sugar Beet ... | 27,902 | 2,090 |
| Clover ... ... ... | 104,829 | 4,287 |
| Grass ... ... ... | 337,928 | 20,806 |
| Bare fallow ... ... ... | 28,077 | — |
| | 844,607 | 61,186 |

This represents an average loss of crop of 7.2 % due to attacks by various insect and other animal pests.

It will be seen that the season was characterized by an almost complete absence of serious specific pests in epidemic form, such as Frit Fly, Turnip Flea, etc. On the other hand there was a super-abundance of general feeders such as Slugs and Leatherjackets.

In conclusion may I urge upon our Members the need for more experiments and the desirability of expressing in numbers more and more of the nature problems being studied. It must, however, be remembered that the biological observations must never be relaxed. They cannot be replaced purely by numbers, but they may be assisted by them.

One of the leading statisticians, Mr. Yule, says "You can prove anything by statistics is a common gibe. Its contrary is more nearly true—you can never prove anything by statistics."

# LINCOLNSHIRE MOSSES.

G. H. Allison, Grimsby.

The list of Lincolnshire Mosses which was commenced in the "Transactions", 1931, pp. 22—37, is continued and completed in the present paper.

Among the species worthy of special note are:

*Webera annotina* Schwaeg. var. *bulbifera*. This was taken at Manton in 1911 and 1912. The plants were at the time declared to be fertile (which is very rare), but later the fruit which was closely adhering to them was found to belong to *Webera nutans*.

*Bryum mamillatum* Lindb. is recorded for Cleethorpes, Humberstone, and Saltfleetby. In 1919, when first found in the County, the only previous records were from certain Baltic Islands and one from North Norfolk; but it has been found also in South Lancashire, and in Switzerland, since that time. It is a very rare species, the capsule short and turgid, and the spores very large, twice the dimensions of those of *B. lacustre*.

*Bryum Warneum* Bland. This was a new County record in 1910 when the plants, crowded over a considerable area, formed with their light yellow capsules a very pleasant sight. This forms, along with *B. pendulum*, *B. Marratii*, *B. lacustre* and *B. calophyllum*, a group frequently found in association. If the latter species could be found about our shores the whole of this group would be complete with us.

*Bryum uliginosum* B. & S. is another rare species.

Altogether the genus *Bryum* is well represented in the County, the great majority of the records being in the northern half. We have about 20 species, or about half the total number recorded for the British Isles.

*Hypnum cuspidatum* L. var. *caespitosum* Whitehead. The "London Catalogue of British Mosses" contains only one other record of this variety. The record for V.C. 53 is one of those made by the Rev. W. W. Mason in 1899.

## LINCOLNSHIRE BRYOPHYTA Part II.

### Bryaceae.

*Leptobryum pyriforme* Wils. 4, Grimsby, 1901, A.S. Cleethorpes, 1928, A. Holderness. 9, Theddlethorpe, 1920, A. 10, Tumby, 1904, H. 11, Halton Holgate, J.L. 14, Sleaford, 1920, S.C.S.

*Webera nutans* Hedw. Very many records, particularly on moors.

*W. annotina* Schwaeg. 2, Twigmoor, 1892, P. & D.

var. *bulbifera* Correns. 2, Manton, 1911, A, and 1912, J.J.M.

*W. carnea* Schp. 2, Santon, 1878, H. F. Parsons. 3, Barton-on-Humber, 1904, C.S.C. Barrow Haven, 1930, A. 4, Barnoldby, Croxby, Hatcliffe, Waithe, Waltham, 1910-1931, A. Little Cotes, 1919, B. 10, Tumby, 1904, H. On banks, usually near the water edge. A pretty plant when seen in good fruit.

*W. albicans* Schp. 2, Santon, 1878, H. F. Parsons. Scunthorpe, 1910, A. 3, Barton-on-Humber, S.C.S. Bonby, 1900, J. Dennis. 4, Barnoldby, Waltham. 8, Tetney. 10, Horncastle, 1910-1931, A. Woodhall, 1901. 15, Brandon, S.C.S.

*Bryum pendulum* Schp. 4, Barnoldby, Cleethorpes, Grimsby, 1909-1932, A. 8, Louth, 1890, J.L. 9, Saltfleet, 1900, M.

Abundant about the coast sand dunes, Cleethorpes to Sutton-on-Sea.

*B. Warneum* Bland. 4, Humberstone, 1910. Cleethorpes, 1932, A. 9, Saltfleetby, 1932, A.

*B. calophyllum* R.Br. 4, Cleethorpes. Not a satisfactory record, only foliage found, A.

*B. Marratii* Wils. 4, Cleethorpes, Humberstone, 1922-29. 9, Saltfleetby, 1924, A.

The 'British Bryological' Report for 1925, contains the following remark concerning the Saltfleetby specimens:—"This beautiful and rare moss has been gathered at the right time, it is in beautiful condition.'

*B. lacustre* Brid. 4, Cleethorpes, Humberstone, 1926-1932, A. 9, North Somercotes, 1898, M., also 1912, A. 11, Huttoft, 1903, S.C.S.

*B. mamillatum* Lindb. 4, Cleethorpes, Humberstone, 1919-1932, A. 9, Saltfleetby, 1922, A.

*B inclinatum* Bland. 4, Aylesby, Humberstone, Little Cotes, Waltham, 1910-29, A. 10, Thornton, A. Tumby, 1904, H.

*B. uliginosum* B. & S. 14, Cranwell, 1898, S.C.S.

*B. pallens* Sw. 1, Haxey, H. F. Parsons. 4, Cleethorpes. 5, Scotter, J.J.M. & B. & A. 9, Saltfleetby, 1928, A. The plants were fertile in the three latter. 10, Tumby, 1904, H. 16, Deeping St. James, 1899, M. The foliose part of this moss is a beautiful object and the plant is found in many localities in this form.

*B. pseudo-triquetrum* Schwaeg. There are many records.

*B. bimum* Schreb. 2, Brumby, Scunthorpe, S.C.S. 4, Grimsby, Irby, 1910, J.J.M. 10, Holbeck, A. Tumby, 1931, A.S. & A. 11, Huttoft, S.C.S. 16, Deeping St. James, S.C.S.

*B. pallescens* Schleich. 2, Scunthorpe, A.

*B. intermedium* Brid. 2, Scawby, 1903, P. & M. 4, Cleethorpes, Humberstone, Waltham, A., J.J.M. & B., 1910-30. 10, Tumby, 1904, H. 13, Court Leys, 1898, S.C.S.

*B. caespiticium* L. 2, Normanby, L.N.U., 1932. Many records on the register.

*B. capillare* L.Very common in varying habitats.

var. *torquescens* Husn. 4, Beelsby, Hatcliffe, Irby, South Ferriby, 1910-30, all taken in chalk quarries, A.

var. *rosulatum* Mitt. 3, Cadney, 1898, M. & G.

*B. Donianum* Grev. 13, Court Leys, 1898, S.C.S.

*B. erythrocarpum* Schwaeg. 2, Manton. 5, Laughton, Scotton, L.N.U., June 1931, when extensive masses were seen, the bright red capsules giving colour to considerable areas.

Barren plants found in many fallow fields.

*B. atropurpureum* W. & M. 3, Melton Ross, E. Halton, in

quantity in old clay pits. 4, Grimsby, Waltham, 1910, A. 8, Louth, 1913, O. 10, Tumby, 1904, H. 12, Wainfleet, A. 15, Grantham, S.C.S.

*B. murale* Wils. 11, Grebby, 1924. Welton Wood, on mortar joints of brick-work, lime kilns, 1925, Miss A. Holderness.

Very rare.

*B. argenteum* L. Extremely common.

var. *lanatum* B. & S. 13, Caythorpe. 15, Sapperton, 1900, S.C.S.

*Mnium affine* Bland. 3, Cadney, 1898, G. 10, Tumby, 1904, H.

*M. cuspidatum* Hedw. 10, Tumby, 1904, H. 15, Grantham, 1892.

*M. rostratum* Schrad. Many records on the register.

*M. undulatum* L. Two stations for fertile plants, viz.:—4, Hatcliffe Chalk Pit, Irby Holme, 1910-14, with aggregated setae. Barren plants occur probably in all parishes.

*M. hornum* L. There are numerous records.

*M. serratum* Schrad. 7, Tealby, F.A.L. 11, Alford, 1892, E. Woodthorpe. 13, South Moor, 1880, F.

*M. stellare* Reich. 4, Barnoldby, 1910, A. Hatcliffe, 1913, B. 10, Tumby, 1904, H. Holbeck, 1931, A.

*M. punctatum* L. Many records.

### Fontinalaceae.

*Fontinalis antipyretica* L. Numerous records on the register. Floating in ponds and streams. Fruiting when anchored to stones or tree roots as at 4. Bradley, A.

### Cryphaeaceae.

*Cryphaea heteromalla* Mohr. 2, Broughton, 1877, F.

### Neckeraceae.

*Neckera crispa* Hedw. 2, Broughton, 1880, F. 13, Nocton. 14, Aswardby. 15, Corby. 16, Bourne, 1879-1886, F.

*N. complanata* Huebn. Numerous records. Found in fruit at Laceby, 1910, A.

LEUCODONTACEAE.

*Leucodon sciuroides* Schwaeg. Many records.

*Porotrichum alopecurum* Mitt. Numerous records.

LESKEACEAE.

*Leskea polycarpa* Ehrh. 4, Little Cotes, 1909, A. 8, Louth, 1898, F. 10, Tumby, 1904, H. 13, Caythorpe, Fulbeck, S.C.S.

*Anomodon viticulosus* H. & T. 4, Stainton-le-Vale, F.A.L. 8, Louth, 1900, M. 10, Tumby, 1904, H. 15, Great Ponton, 1902, P.

*Thuidium abietinum* B. & S. 15, West Willoughby, 1902, S.C.S.

*T. tamariscinum* B. & S. Numerous records.

*T. delicatulum* Mitt. 3, Limber Chalk-pit, 1912. 11, Welton Wood, 1930, A.

HYPNACEAE.

*Climacium dendroides* W. & M. Many records.

*Cylindrothecium concinnum* Schp. 4, Limber, 1912, J.J.M. 14, Cranwell, 1901. 15, Grantham, 1905, S.C.S.

*Pylaisia polyantha* B. & S. 8, Louth, J.L., also 1912, O.

*Camptothecium sericeum* Kindb. Numerous records.

*C. lutescens* B. & S. Many records have been previously published.

*Brachythecium glareosum* B. & S. 2, Alkborough, 1931, A. 4, Cleethorpes, 1901, M. 7, Rasen, F.A.L.

*B. albicans* B. & S. Many records. Abundant about the coast sand dunes.

*B. salebrosum* B. & S. 7, Rasen, 1877, F.A.L. 10, Tumby, 1904, H. 15, Brandon, 1900, S.C.S.

var. *Mildeanum* Schp. 9, Theddlethorpe, 1893, T.

*B. rutabulum* B. & S. Numerous records.

*B. rivulare* B. & S. 10, Hagworthingham. Attached to tree roots, with the water of the brook overflowing it, 1932. 11, Well Vale Lakes, 1931, A.

*B. velutinum* B. & S. On the register there are records for over thirty divisions.

*B. populeum* B. & S. 4, Little Cotes, 1911, J.J.M. 7, Rasen. 8, Louth, 1913, O. 15, Great Ponton, 1898, H. Preston.

*B. plumosum* B. & S. 7, Rasen, 1877, F.A.L. 14, Cranwell, 1898, S.C.S.

*B. purum* Dixon. Numerous records.

*Eurhynchium piliferum* B. & S. Records for twenty-two localities are on the register. 10 for the South. 12 for the North.

*E. crassinervium* B. & S. 3, Cadney, 1901, P. 4, Thorganby, 1931. 7, Claxby, 1910, A. Tealby, 1877, F.A.L. Newball Wood, 1899, T. Stow. 13, Caythorpe. 14, Cranwell. 15, Brandon, 1899, S.C.S. Bytham. Grantham, L.N.U., 1898. Stubton, 1898, S.C.S. Woodnook Wood, 1913, on Hazel, S.C.S.

*E. praelongum* Hobkirk. Numerous records.

*E. Swartzii* Hobkirk. Thirty records are on the register. Fruiting plants at Weelsby, 1915, J.J.M. Rare.

*E. pumilum* Schp. 4, Little Cotes, 1911, J.J.M.

*E. tenellum* Milde. 7, Linwood, 1877, F.A.L. 15, Sapperton, 1901, S.C.S.

*E. myosuroides* Schp. 2, Broughton, F. 3, Cadney, 1898, M. & G. 4, Stainton-le-Vale, F.A.L. 10, Woodhall Spa, 1899, S.C.S. Tumby, 1904, H. 11, Tothill, 1888, Miss Allet. 14, Cranwell, 1898, S.C.S.

*E. myurum* Dixon. 4, Bradley Wood, Little Cotes, A. 7, Linwood, 1877, F.A.L. 8, Authorpe, 1931, A. 10, Tumby, 1904, H. 11, Welton Wood, fruiting plants, A.

*E. striatum* B. & S. Numerous records.

*E. rusciforme* Milde. Numerous records.

*E. murale* Milde. 2, Alkborough. 4, Barnoldby, 1931, A. 7, Claxby, 1903. Rasen, 1877, F.A.L. 8, Louth, M. 10, Tumby, 1904, H. 13, Court Leys, 1898, S.C.S. 14, Bloxholme, Cranwell, 1898, M. 15, Ancaster, Belton Park, Hough, Stroxton, 1898, S.C.S.

*E. confertum* Milde. Numerous records.

*E. megapolitanum* Milde. 9, Theddlethorpe, no date, T. Rare.

*Plagiothecium elegans* Sull. 3, Elsham, 1932. With branch-like gemmae. 4, Croxby, 1932, A. Irby Dale, 1912. 7,

Holton-le-Moor, A. Tealby, 1877, F.A.L. 16, Bourne, 1932, A.

*P. denticulatum* B. & S. Numerous records.

*P. silvaticum* B. & S. 4, Bradley, Irby, A. 10, Hundleby, 1890, J. B. Davy. Tumby, 1904, H. 13, South Moor, 1880, F. Stapleford, S.C.S.

*P. undulatum* B. & S. 2, Twigmoor, 1892, P. & D. 3, Nettleton, 1899, Allett. 10, Tumby, 1904, H. 13, Stapleford, 1899, S.C.S. 3, Brigg, Elsham, 1932, in great abundance. See note in the "Naturalist", 1889, p. 4, referring to pre-historic times.

*P. latebricola* B. & S. 4, Bradley, 1915, A. 10, Tumby, 1904, H.

*Amblystegium serpens* B. & S. Numerous records.

*A. Juratzkanum* Schp. 4, Holm Hill brick-pit, Grimsby, 1912, J.J.M. This perhaps is not a satisfactory County record, the spores having probably been introduced with material used in connection with brick making.

*A. varium* Lindb. 10, Revesby, 1931, A. On fallen tree.

*A. irriguum* B. & S. 3, Cadney, 1898, M. & G.

*A. fluviatile* B. & S. 13, Nocton. 14, Sleaford, 1880, F.

*A. filicinum* De Not. Numerous records.

var. *vallisclausae* Dixon. 8, Louth, 1900, M. 15, Ropsley, 1900. S.C.S.

*Hypnum L.* (*emend. B. & S.*)

*A. Campylium.*

*H. riparium* L. 1, Keadby, 1898, F. 4, Bradley, 1911. Humstone, Irby, A. 9, North Somercotes, Saltfleet, 1899, M. 10, Revesby. Tumby, 1904, H. Woodhall Spa, 1899, S.C.S. 15, Houghton, 1900, S.C.S. 16, Deeping, 1880, F. 17, Surfleet. 18, Spalding, 1901, S.C.S.

var. *longifolium* Schp. 2, Manton, 1930. 9, Theddlethorpe, 1932, A. (det. J. B. Duncan). 14, Cranwell, S.C.S. Digby, 1904, H. Dorrington, 1903, M. (det. J.A.W.). 15, Belton Park, 1913. 18, Spalding, 1901, S.C.S.

*H. elodes* Spruce. 5, Laughton, Scotter, Scotton, 1931, A. Among Mr. Larder's papers is a note referring to this species. No locality is mentioned. *H. polygamum* is similarly referred to.

*H. polygamum* Schp. 9, Theddlethorpe. Fertile plants found June, 1932, A.

*H. stellatum* Schreb. 5, Scotton, 1903, M. & P., also 1931, A., in luxuriant submerged mass. 8, Thoresby, B. Wold Newton, 1911, A. 13, Blankney, 1904, H. West Willoughby, 1898, S.C.S.

*H. chrysophyllum* Brid. 2, Broughton, F. 4, Bradley, Irby Dale. 8, Authorpe, Fotherby, A. 10, Tumby, 1904, H. 15, Ancaster, West Willoughby, 1898, S.C.S.

*H. hispidulum* var. *Sommerfeltii* Myr. 15, Sapperton, 1900, S.C.S.

*B. Harpidium.*

*H. aduncum* Hedw. 9, N. Somercotes. 1899, M. 10, Mareham-le-Fen, 1904, H. forma *falcata* Ren. 10, Horncastle, 1930, A. (det. W. R. Sherrin).

Group *typicum* Ren.

var. *gracilescens* Schp. 15, Ropsley, 1900, S.C.S. (det. J.A.W.)

,, *aquaticum* Sanio. 4, Cleethorpes, A.

,, *diversifolia* Ren. 18, Spalding, 1898, S.C.S. (det. J.A.W.)

Group *Kneiffii* Ren.

var. *polycarpon* Bland. 9, Theddlethorpe, 1932, A. (det. W. R. Sherrin).

,, *intermedium* Schp. 10, Kirkby-on-Bain, 1901, S.C.S. (det. J.A.W.). forma *laxifolia* Ren. 13, Caythorpe, 1898, S.C.S. (det. J.A.W.). forma *penna* Sanio. 16, Surfleet, 1901, S.C.S. (det. J.A.W.).

Group *pseudofluitans* Sanio.

var. *paternum* Sanio. 2, Scunthorpe, 1930, A. (det. W. R. Sherrin).

*H. Wilsoni* Schp. 9, N. Somercotes, 1899, M. Very rare.

*H. lycopodioides* Schwaeg. 5, Scotton, 1903, M. & P.

*H. fluitans* L. 1, Haxey, Keadby, 1899, F. 3, Barton-on-Humber, 1898, H. G. Firbank. 10, Kirkby-on-Bain, H.

var. *falcifolium* Ren. 2, Brumby, 1902, S.C.S. (det. J.A.W.)

,, *Robertsiae* Ren. 2, Manton, 1932, A. Rare.

*H. exannulatum* Gumb. 1, Haxey turbary, 1899, F. 5, Laughton, 1897, F., also 1931, A. Scotton, 1897, F. 9, N. Somercotes, 1899, F. Theddlethorpe, 1932, A.

var. *pinnatum* Boul. 5, Scotton, 1905, S.C.S. (det. J.A.W.)

*H. revolvens* Swartz. var. *Cossoni.* 5, Scotton, 1931, A.

*H. commutatum* Hedw. 2, Broughton, F. Risby, 1931, A. 3, Caistor, 1902, Allett. 4, Little Cotes, J.J.M. 5, Scunthorpe. 7, Tealby, 1931, A. 15, Grantham, 1898, L.N.U. Stoke Rochford, 1898, M. Saltersford, Great Ponton, 1912, S.C.S.

*H. falcatum* Brid. 4, Irby, 1914, A. 5, Scotton, 1905, S.C.S. (det. J.A.W.) 9, N. Somercotes, 1899, M. 15, Stroxton, 1905, S.C.S.

*C. Drepanium.*

*H. cupressiforme* L. The type very common.

var. *resupinatum* Schp. 4, Waltham, 1911, A. 8, Louth. 9, N. Somercotes, 1901, M. 10, Tumby, S.C.S. Woodhall Spa.

var. *filiforme* Brid. 10, Tumby, 1904, H.

,, *minus* Wils. 13, Court Leys, 1898, S.C.S.

,, *ericetorum* B. & S. 13, Mere, 1899, M.

,, *elatum* B. & S. 4, Humberstone. 7, Holton-le-Moor, 1931, A. 9, Saltfleetby, A., fertile plants.

*H. Patientiae* Lindb. 2, Twigmoor, 1892, P. & D. 16, Bourne, 1932, A.

*H. molluscum* Hedw. Numerous records.

*D. Limnobium.*

*H. palustre* Huds. 10, Edington, 1904, H. 15, Great Ponton, H. Preston.

*H. scorpioides* L. 5, Scotton, 1898, F.

var. *angustifolium* San. 5, Scotton. This resembles in appearance *Hypnum lycopodioides.*

*E. Calliergon.*

*H. stramineum* Dicks. 2, Brumby, 1902, S.C.S. 5, Scotton, 1898, P. & D., also 1930-32, A.

*H. cordifolium* Hedw. 2, Brumby, 1902, S.C.S. 4, Grimsby, Holm Hill, 1914, A. Irby, 1909, A. 5, Laughton, F., also fertile plants, 1910, A. 9, N. Somercotes, 1899, M. 10, Kirkby-on-Bain, H. 12, Old Leake, 1898, M.

*H. giganteum* Schp. 4, Grimsby, Holm Hill, 1910, J. J. M. & A. 5, Scotton, 1903, M. & P., also 1930-32, A.

*H. cuspidatum* L. Numerous records.

var. *caespitosum* Whitehead. 16, Deeping St. James, 1899, M.

*H. Schreberi* Willd. 1, Owston Ferry, 1899, A. Reynolds. 3, Caistor, Nettleton, 1898, Allett. Limber, A. Very abundant on sandy moors. Fruiting plants were taken at Kirkby Moor, April, 1904, by H. C. Hawley. A very rare occurrence in Britain.

*Hylocomium splendens* B. & S. 3, Barton-on-Humber, 1904, S.C.S. 8, near Louth, 1913. 9, Saltfleet, A. 15, Stroxton. Fruiting plants were found at Tumby Wood, Div. 10, which is a rare occurrence.

*H. brevirostre* B. & S. 16, Fulsby Wood, 1904, H. Rare in the lowlands.

*H. loreum* B. & S. 7, near Rasen, in fir wood, Walesby Road, 1877-9, F.A.L. Mr. Lees remarked in 1878 that he thought this species was dying out in this locality. 13, Court Leys, 1898, S.C.S.

*H. squarrosum* B. & S. Extremely common. But we have no records of fertile plants.

*H. triquetrum* B. & S. Almost as common as the last. Fruiting specimens found at Welton Wood, Div. 11, 1929-32, A. This species and *H. squarrosum* are frequently found together forming a dense mass, often occupying areas several square yards in extent.

## ADDENDA.

*Pottia bryoides* Mitt. 4, Humber Bank, Grimsby, 1910, J.J.M. Cleethorpes, 1927, in two separate stations, A. These localities should have appeared on page 30, "Transactions" 1931.

*Sphagnum fimbriatum* Wils. var. *flavescens* Warnst. 5, Scotter, 1932, A.

*S. squarrosum* Pers. var. *subsquarrosum* Russ. 5, Scotter, 1932, A.
var. *imbricatum* Schp. 7, Usselby, 1932, A.

*S. amblyphyllum* Russ. var. *mesophyllum* Warnst. 5, Scotter, 1932, A.

*S. pulchrum* Lindb. forma. 2, Manton, 1932, A.

*S. subsecundum* Nees. var. *intermedium* Warnst. 2, Manton. 5, Scotter, 1932, A.

*S. auriculatum* Schp. var. *canovirescens* Warnst. 3, Wrawby, 1932, A.

*S. bavaricum* Warnst. 5, Scotter, 1932, A.

*S. papillosum* Lindb. var. *normale* Warnst. 2, Manton. 5, Scotter, 1932, A.

ERRATUM.—Humberstone should in all cases be preceded by the divisional number 9 not 4.

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In the volumes of the "Naturalist" there are many references to the finding of mosses in Lincolnshire. In 1896, the Rev. W. Fowler, M.A., recorded 67 species. In 1898 Mr. J. Larder contributed "Lincolnshire Mosses: being Part I of notes for a future Cryptogamic Flora of Lincolnshire" which enumerated 172 species and varieties. A criticism of these notes in the same volume by Mr. L. J. Cocks says—"There is evidently much more to be done by bryologists in the County. Diligent search should add some 40 or 50 species to those now put on record". This was responded to in 1900 by Miss S. C. Stow's list of "Mosses new to North or South Lincolnshire" comprising 61 species, followed in 1901 and 1902 by 29 further new records. In compiling the present list Mr. Allison has gathered up the threads of information collected by previous workers which together with his own research has resulted in a catalogue of over 280 species and varieties. Fifty of this number, credited to two or three Grimsby observers, are additions since 1909.

ED.

## Important finds of
# LAND AND FRESHWATER SHELLS IN THE LIME DEPOSITS AROUND BROUGHTON,
## near Brigg.

J. F. Musham.

At the Alkborough Meeting in May, 1932, Mr. C. F. B. Shillito of Brocklesby submitted a few shells which he had washed out of the above-mentioned deposits; and these proved of such interest that it was agreed to give the area a thorough investigation. Up to the time of writing a systematic series of washings has yielded important results; whereby seven species have been added to the County list, together with an increase of twenty-one species for the Brigg Division. Prior to this *Acicula lineata*, *Lauria anglica*, *Vertigo antivertigo*, *V. substriata*, *V. angustior*, and *Pisidium cinereum* were each represented by only one shell for the County.

Further sites in these deposits have just been brought to Mr. Shillito's notice, from which he hopes during the summer and autumn to obtain further shells. Meanwhile he is congratulated on the acquisition in such a short time of sixty species, including as they do such a fine range of very rare local species.

To Mr. A. S. Kennard and Mr. C. Oldham we are greatly indebted for their kindness in identifying the univalves and bivalves respectively, and we extend to these gentlemen our best thanks. Mr. Kennard has further favoured us with the following notes:—

Of these shells, the most noteworthy species are *Goniodiscus ruderatus* (Stud.) and *Vertigo genesii* Gred. The former species is quite unknown living in these islands but is known as a Holocene fossil from Nottinghamshire, North Essex, and Hertfordshire. The latter form is unknown living in Great Britain, but is known from two localities in Ireland; as a

Holocene fossil it is known from Elie, Fifeshire, and Wilstone, Herts.

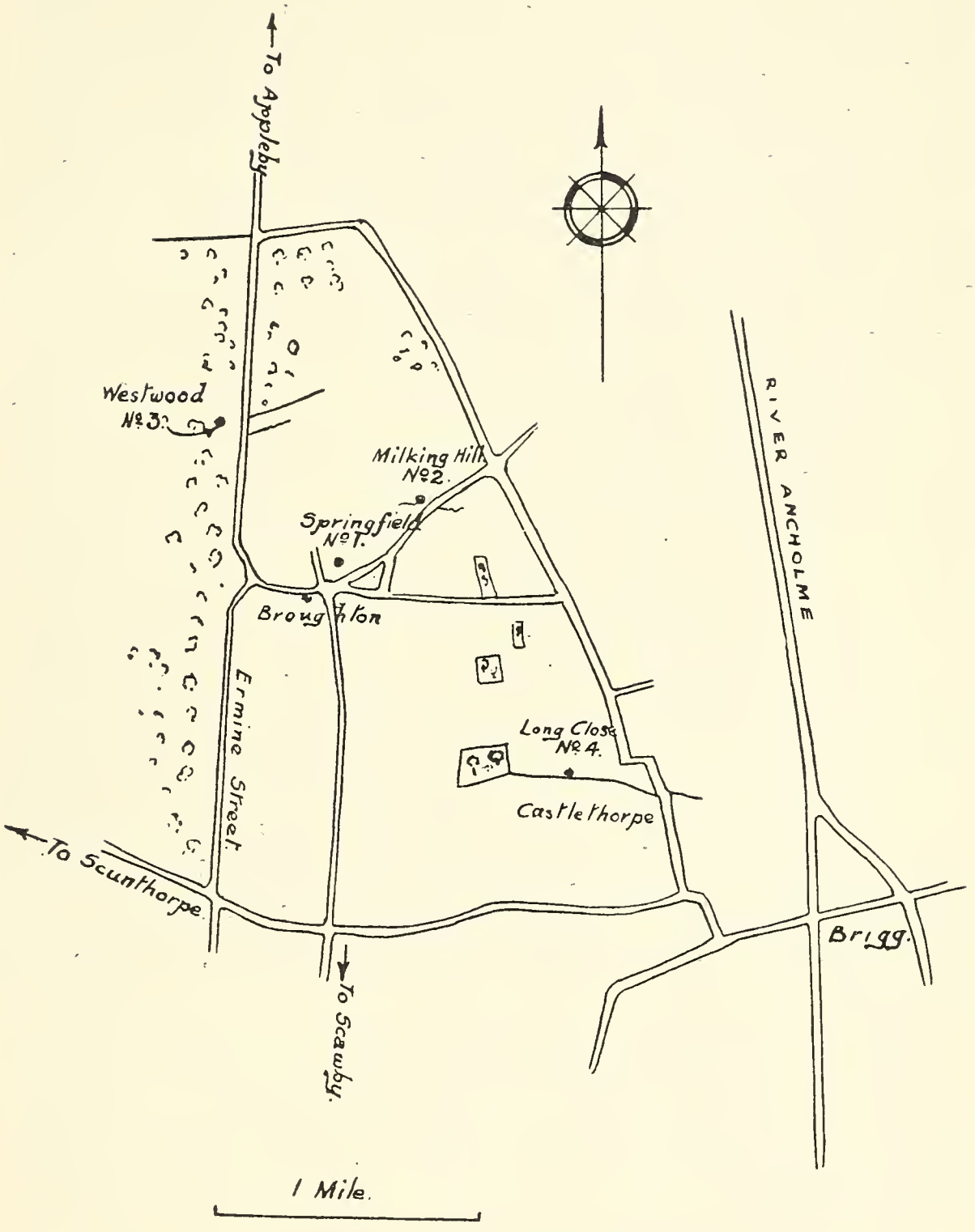
There are five other new County records, *Acanthinula lamellata* (Jeff.), *Vertigo pusilla* Müll., *V. moulinsiana* Dupuy, *Ena montana* (Drap.), and *Succinea oblonga* Drap., and in all these species it is a great extension of their known former range.

One point must be emphasized and that is the size to which nearly all the species attain; this is particularly true of the swamp forms and indicates that the environment was extremely suitable to them. The examples however of *Cepaea nemoralis* (Linn.) are decidedly small, a feature that seems characteristic of this species when occurring in Marl deposits.

Of the four deposits investigated, three were evidently accumulated under the same conditions, Springfield, Milking Hill, and Westwood Lodge; in these the land shells are extremely abundant and freshwater forms are rare; they probably represent a swamp or marshy ground subject to flooding, the stream water must have been supersaturated with lime which was deposited in the form of tufaceous marl. At Castlethorpe however freshwater shells are abundant and land mollusca rarer; this probably represents a shallow mere or pool subject to dessication. It is clear that when this fauna lived in Lincolnshire the rainfall must have been much heavier than it is to-day, possibly resembling that of the Lake District.

As to the age, no human artefacts have been discovered, but in all probability they may be assigned to the "Beaker" period, or about the same age as the "Atlantic" period of the Botanists, when the damper climate enabled the species to spread everywhere; then came the dry period, some forms became extinct, whilst a few lingered on as "relicts" in suitable situations.

Following are detailed lists of the shells found in the four deposits; together with a sketch map of the area showing the relative positions of each site. N.C.R. = New County Record; N.D.R., new to the Brigg Division.




**Sketch-map showing sites of investigations made by Mr. C. F. B. Shillito.**

SPRINGFIELD, 100ft. O.D.

*Pomatias elegans*, rare, N.D.R. *Acicula lineata*, very rare, N.D.R. *Valvata cristata*, very rare. *Limnaea pereger*, rare; *L. truncatula*, abundant. *Planorbis crista*, rare; *P. leucostoma*, common. *Carychium minimum*, abundant. *Acanthinula aculeata*, rare; *A. lamellata*, very rare, N.C.R. *Cochlicopa lubrica*, abundant. *Punctum pygmaeum*, abundant. *Vallonia pulchella; V. costata; V. excentrica*, N.D.R.; all common. *Lauria cylindracea*, very rare; *L. anglica*, very rare, N.D.R. *Pupilla muscorum*, common. *Vertigo pusilla*, very rare, N.C.R.; *V. angustior*, very rare, N.D.R.; *V. substriata*, common; *V. moulinsiana*, rare, N.C.R. (Swanton in his book quotes this shell for Lincs, but we have no previous record); *V. antivertigo*, common; *V. genesii*, common, N.C.R. *Columella edentula*, common. *Goniodiscus rotundatus*, common; *G. ruderatus*, very rare, N.C.R. *Arion* sp., common. *Vitrina pellucida*, very rare. *Aplexa hypnorum*, common. *Succinea pfeifferi*, common. *Limax arborum*, common; *Limax* sp., common. *Agriolimax laevis*, very rare. *Helicella cellaria*, rare; *H. nitidula*, rare; *H. radiatula*, abundant; *H. pura*, rare. *Zonitoides nitidus*, common, N.D.R. *Vitrea crystallina*, common, N.D.R. *Euconulus fulvus*, abundant. *Trochulus hispidus*, common. *Arianta arbustorum*, rare. *Cepaea nemoralis*, rare. *Clausilia rugosa*, very rare. *Pisidium cinereum*, rare, N.D.R.; *P. obtusale*, common, N.D.R.; *P. nitidum*, rare, N.D.R.; *P. milium*, common, N.D.R.; *P. personatum*, common, N.D.R. Eggs of Helicoids.

A second site at Springfield was tested for results, and the yield was similar to the first; but with an excess of *Cochlicopa lubrica* and *H. radiatula*, and a scarcity of such a common shell as *G. rotundatus*.

MILKING HILL, 50ft. O.D.

*Pomatias elegans*, common. *Acicula lineata*, common; v. *sinistrosum*, one shell only. *Limnaea pereger; L. truncatula*, both common. *Planorbis crista; P. leucostoma*, both common. *Carychium minimum*, abundant. *Aplexa hypnorum*, rare. *Succinea pfeifferi*, common. *Cochlicopa lubrica*, common. *Pupilla mus-*

*corum*, common. *Lauria cylindracea*, rare. *Vertigo pusilla*, rare; *V. antivertigo*, common; *V. substriata*, rare; *V. pygmaea*, rare; *V. genesii*, common; *V. angustior*, rare. *Columella edentula*, common. *Acanthinula aculeata*, common. *Punctum pygmaeum*, common. *Goniodiscus rotundatus*, abundant. *Vallonia pulchella*, rare; *V. costata*, common; *V. excentrica*, common. *Arion* sp., common; *A. hortensis*, very rare. *Vitrina pellucida*, rare. *Limax maximus*, rare; *L. arborum*, common. *Agriolimax laevis*, rare. *Helicella cellaria; H. nitidula; H. radiatula; H. pura;* all common. *Zonitoides nitidus*, common. *Euconulus fulvus*, common. *Vitrea crystallina*, common. *Trochulus hispidus*, common. *Arianta arbustorum*, rare. *Chilotrema lapicida*, very rare. *Cepaea nemoralis*, rare. *Ena montana*, very rare, N.C.R. *Clausilia rugosa; C. laminata*, both common. *Pisidium cinereum*, rare; *P. obtusale*, common; *P. nitidum*, rare; *P. milium*, common; *P. personatum*, rare. A few Ostracods.

### Westwood Lodge, 130ft. O.D.

*Limnaea pereger*, rare; *L. truncatula*, abundant. *Planorbis leucostoma*, rare. *Carychium minimum*, abundant. *Pupilla muscorum*, rare. *Lauria anglica*, abundant; *L. cylindracea*, rare. *Cochlicopa lubrica*, common. *Vertigo angustior*, common; *V. antivertigo*, very rare; *V. pygmaea*, very rare; *V. substriata*, common; *V. genesii*, very rare; *V. pusilla*, common. *Columella edentula*, rare. *Ena montana*, very rare. *Punctum pygmaeum*, common. *Goniodiscus rotundatus*, abundant; *G. ruderatus*, very rare. *Arion* sp., rare; *A. hortensis*, very rare. *Acanthinula aculeata*, abundant; *A. lamellata*, common. *Vallonia excentrica*, rare; *V. pulchella*, very rare; *V. costata*, common. *Helicella nitidula; H. radiatula*; *H. pura*, all abundant. *Zonitoides nitidus*, common. *Euconulus fulvus*, common. *Vitrea crystallina*, abundant. *Trochulus hispidus*, common. *Limax* sp., common; *L. maximus*, very rare; *L. arborum*, common. *Agriolimax laevis*, very rare. *Arianta arbustorum*, rare. *Cepaea nemoralis*, common. *Succinea oblonga*, young, very rare, N.C.R. *Clausilia rugosa*, common; *C. rolphii*, very rare, N.D.R. *Pisidium cinereum*; *P. personatum*; *P. nitidum*, all rare; *P. subtruncatum*,

a single right-valve only, N.D.R. Eggs of Helicoids. Derivative Oolite shells and Encrinite discs.

Long Close, Castlethorpe, between 30 to 50ft. O.D. *Limnaea peregev*; *L. truncatula*, both abundant. *Planorbis crista*, rare; *P. leucostoma*, abundant; *P. contortus*, common; *P. albus*, common. *Carychium minimum*, rare. *Cochlicopa lubrica*, common. *Punctum pygmaeum*, rare. *Vallonia pulchella*, abundant. *Pupilla muscorum*, common. *Vertigo substriata*; *V. pygmaea*; *V. antivertigo*, all very rare; *V. genesii*, abundant. *Arion* sp., rare. *Succinea pfeifferi*; *S. oblonga*, both abundant. *Limax arborum*, common; *Limax* sp., rare. *Helicella radiatula*, very rare. *Euconulus fulvus*, rare. *Trochulus hispidus*, rare. *Pisidium cinereum*, rare; *P. milium*, rare; *P. obtusale*, common.

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# Report of the Hon. Secretary,

## 1932.

Five Field Meetings have been held during the year.

The One-Hundred-and-Fifty-third meeting was held on May 26th. The members assembled at Alkborough Church and were met by Mr. Harold E. Dudley who had made the local arrangements and conducted the party. The Maze, Earthworks, and gardens of Walcot Hall were visited, the latter by permission of Mr. E. C. Bradley, who also arranged for Roman pottery, coins, etc., found near by, to be exhibited. The walk along the cliffs to Burton-on-Stather yielded much interest, though no new records were made. Tea was taken at Burton-on-Stather. The most interesting event of the day was the exhibition by Mr. C. F. B. Shillito of a fine series of shells of Mollusca from a North Lincolnshire Holocene deposit which he had been investigating: a fine piece of work adding greatly to our knowledge of the former molluscan fauna of the County.

The One-Hundred-and-Fifty-fourth meeting was held on June 25th, at Potterhanworth. By permission of Mr. J. H.

Dennis the wooded area by the side of the Carr Dyke was visited. Large numbers of plants were seen; and the abundance and great variation of the Spotted Orchis were particularly noticeable. Mr. G. R. Porter reported a number of birds seen. Mr. A. Roebuck (President) reported *Tortrix viridana* in enormous numbers causing the Oaks to be defoliated; and among other things he caught a specimen of *Volucella bombylans*, the fly that mimics the Bumble Bees *(Bombus)*, and whose larvae live in the nests of *Bombus hortorum*, *B. jonellus*, and other *Bombus* species.

The One-Hundred-and-Fifty-fifth meeting was held on July 21st at Ingoldmells. The party was met by Mr. J. Giles, who conducted them to one of the "Kilns" which was fortunately exposed among the clay below high-water mark. Several "hand bricks" were observed among a mass of earthenware, the site being believed to be that of one of the many ancient salt-works of the district. Professor H. H. Swinnerton who was unable to be present, sent an interesting account with diagrams of the local geological changes that had taken place, and this communication was read, and much appreciated by the members. The site of Roman occupation and other features were pointed out by Mr. Giles who is thoroughly familiar with this area, which affords many evidences of changes wrought by the sea. Mr. G. R. Porter contributed a list of the birds, and Mr. C. S. Carter a list of the Mollusca observed during the day.

The One-Hundred-and-Fifty-sixth meeting was held on August 20th at Limber. By kind permission of the Earl of Yarborough the Mausoleum, the woods, and the adjoining area were visited. The party was fortunate in having the conductorship of Mr. R. May of Limber and Mr. and Mrs. S. A. Cox who know the whole district well. After a visit to the Mausoleum, the woods were entered and a most interesting tour was made. The finding of *Monotropa hypopitys* (which was now in flower) was one of the events of the day, for this remarkable plant was believed to be extinct in the County until

it was re-discovered by the naturalists just named. Mr. May pointed out a Douglas Fir in which were the nests of the Bullfinch, Goldcrest and Hawfinch. He also climbed a tree at the top of which was a nest of Sparrow Hawks, and brought down a young one for examination, afterwards replacing it in the nest. The Speckled Wood Butterfly was the best insect seen. In addition to the plant above named, the botanists saw much to interest them, and a patch of ground on which were numerous "aliens" was very attractive. After the old clay-pits and brick-yard had been examined, tea was taken at the "New Inn", and the usual reports were made.

The One-Hundred-and-Fifty-seventh meeting was held on September 8th at Tattershall. The best find of the day was the Red Underwing Moth, which occurred here in one of its old haunts. Mr. Cox reported a solitary Swift seen flying over Tattershall—a very late record. The walk via Tattershall Thorpe and Coningsby, and back by the River Bain to Tattershall yielded a good list of plants, the best of which are noted elsewhere. Opportunity was taken to visit the Castle and Churches. Tea was taken at "The Lodge", where Mr. Skipworth entertained the members, who were much interested in his fine collection of water-colours, and in his delightful gardens.

The meetings were all well attended and the experiment of holding some on Saturdays was justified. Our thanks are due to the owners of the estates to which we have had access, and to all those who have entertained us, assisted in the local arrangements, and conducted the parties.

I regret to have to record the death of four of our members during the year. Mr. Augustus L. Jessopp, J.P., of Lexham Hall, Norfolk, formerly of Leasingham Hall, Lincolnshire, died on January 6th. He joined the Union in 1900 as a life member and when in the County took great interest in its work. On more than one occasion he entertained the members and conducted Field Meetings in the Sleaford area. He also contributed objects of the Bronze Age, found in the

district, to the City and County Museum. Mr. Coningsby C. Sibthorp, M.A., J.P., of Canwick, died on May 9th. He was a life member of long standing, and one who generously supported the funds of the Union annually. His interests in archæology, horticulture, gardening and natural history were well known to all of us. The Rev. William Wright Mason, B.A., died at Louth on August 11th. With his passing we lose another of the few members who joined the Union in its early days. He was a botanist of outstanding ability—and having served as one of our Botanical Sectional Officers to the last—he was in an especial way helpful to the Union's members interested in the County's botany. Mr. Joys Parker of Grimsby died on December 4th. He had been associated with the Union since 1915, and though he did not frequently join us in the field, he had become thoroughly interested in our pursuits.

The Financial position of the Union may be regarded as satisfactory for though the expenditure has again exceeded the income for the year, that is due principally to the cost of the "Transactions", and is justified on this occasion, I think, by the bulk of the part now issued and by the permanent value of its contents. I heartily thank those who have responded to the appeal for contributions to the Publication Fund—though I had hoped for a larger response—and I trust that more members may be willing to contribute during the next year.

The Annual Meeting was held in Lincoln on November 24th, when Mr. A. Roebuck, N.D.A., F.E.S., gave his Presidential address entitled "Measurements in Nature". The Officers for 1933 were elected, being those of the previous year, with alterations to the Botanical Section. The members regretted to hear of the serious illness of the Past-President, Mr. C. S. Carter, and conveyed to him their sincere wishes for his complete recovery.

The following ten new members have been elected during the year:—

Mr. John W. Canham, M.A., Lincoln.

Miss R. I. Fraser, Caistor.
Miss Marjorie J. F. Hett, Spilsby.
Mr. J. W. F. Hill, M.A., LL.M., Lincoln.
Mrs. A. Hunt, Kirkby-la-Thorpe.
Miss Urelia A. Joaquim, Woodhall Spa.
Mr. George R. Porter, Boston.
Mr. C. F. B. Shillito, Brocklesby.
Mr. Arthur Sutcliffe, M.A., B.Sc., Lincoln.
The Rev. H. J. Watney, M.A., Canwick.

I hope that members will continue to help the Union by communicating to me the names and addresses of those friends who might find it agreeable to be associated with us.

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# Sectional Officers' Reports.

## BOTANY.

Miss S. C. Stow.

It may be of interest to record that white-flowered forms of the following plants have been observed in the County during the year: *Ajuga reptans*, *Orchis maculata*, *Linaria minor*, *Specularia hybrida*, *Scabiosa arvensis* and *Geranium molle*.

A large number of plants were listed at the Field Meeting at Potterhanworth, the most interesting of which was *Carex panicea*, a new record for Div. 13, noted by Mr. A. Roebuck. The large numbers of the Spotted Orchis *(O. Fuchsii)* were also a prominent feature; one particular variety of it which occurred in the wetter parts of the wood was referred to Mr. H. Cary Gilson who described it as the typical "Marsh" form.

Among the plants observed during the Tattershall meeting, Mr. S. A. Cox reports *Cladium Mariscus* and *Geranium pyrenaicum*, both additional records for Div. 10.

An unusual Mullein gathered by Mr. R. May, at Limber in October, has been identified provisionally as *Verbascum virgatum*; the specimen, however, was not well developed, and

it is therefore hoped that the determination may be verified this next year.

A specimen of *Trifolium strictum*, gathered at Great Grimsby in May 1879 by Mr. Jos. T. Rowse, has been sent by Mr. T. A. Dymes of Letchworth for the Herbarium at the City and County Museum. This is the only record we have of the adventitious occurrence in the County of this very rare plant.

## ENTOMOLOGY.

A. E. Musgrave.

The excessive rain and inclement weather at week-ends have been so unfavourable for entomological pursuits that I have been able to do little more than pay visits to the haunts of well known and interesting species to ascertain whether they were making their normal appearance in those places.

Three visits were made to Twyford Forest, two in May and one in late July, in search of the Speckled Wood Butterfly, whereof in early May there was no trace, though I saw two examples on the second visit. They occurred, however, in some plenty in July and in good condition, being no doubt freshly emerged individuals of the second brood. I was breeding the southern form at the time from eggs deposited by a caged female sent to me from the South of France; and the contrast in the deep yellow marking of the southern examples with the pale whitish colouring of our local form was very striking. The only other insect taken in that locality was a newly emerged specimen of the August Thorn Moth *(Ennomos quercinaria)*.

Ancaster was visited in early August when the Dark Green Fritillary was found to be fairly plentiful. Its head quarters are in the clearings of local woods, but five or six specimens were seen flying along the road side. The Chalk Hill Blue also made a normal appearance.

Specimens brought in to the Grantham Museum included a pair of the Hornet Moth *(Trochilium apiformis)* in June; the

larva of the Goat Moth *(Cossus ligniperda)* from wood in Belton Park in March; and the larva of the Elephant Hawk (*Chaerocampa elpenor*) in August.

A larva of the Death's Head Moth from Potterhanworth was brought to the Lincoln Museum on August 31st, and several larvae of the Puss Moth from Boultham on July 30th.

The Speckled Wood Butterfly was seen at Limber on August 20th, and the Red Underwing Moth at Tattershall on September 8th.

In July, Dr. H. B. Willoughby Smith sent to the Lincoln Museum a specimen of the very noteworthy insect *Rhyssa persuasoria* which had been taken on the river bank at Gainsborough. This is the largest of the British Ichneumons, and parasitizes the larvae of the Giant Sawfly, *Sirex gigas*, itself one of the most remarkable of British insects.

Insect Immigration.—The appeal for information regarding the movement of certain insects made in the Transactions, 1931, resulted in notes of the following observations coming to hand:—

Painted Lady Butterfly. Seen by Mr. C. P. Arnold near Lincoln, June 25th; and by Mr. R. May at Limber, August 18th and September 15th.

Red Admiral Butterfly. Seen at Limber, August 18th, 31st, September 14th, 15th, 16th, 17th, 24th, and October 2nd.

Clouded Yellow Butterfly. Seen by Mr. H. J. J. Winter in Potterhanworth Wood, August 9th.

Diamond-back Moth. Mr. A. Roebuck reports it "more abundant this year in Derbyshire, Leicestershire, Nottinghamshire, and Lincolnshire than for a number of years".

It is hoped that entomologists will continue to send in their observations to the Hon. Secretary.

## CONCHOLOGY.

J. F. Musham.

I beg to report that a considerable amount of important work has been done by Mr. C. F. B. Shillito in tufaceous lime deposits in North Lincolnshire, with such results as to justify

a separate article which appears in another part of this publication.

Mr. C. S. Carter has added *Trochulus (Hygromia) hispidus* v. *hispidosa*, *Agriolimax agrestis* v. *reticulata* and *Milax sowerbyi* v. *rustica* to Div. 12; this last variety being also a County addition. Our Hon. Sec. contributes *Milax gagates* v. *plumbea* to Div. 6 E. *Pisidium personatum* is an addition to Great Limber. The Tattershall Meeting yielded *Pisidium nitidum* together with *Limnaea stagnalis* v. *fragilis*, *Limnaea auricularia*, *Sphaerium rivicola* and *Unio tumidus* as dead shells from dredgings of the river Bain, Div. 10 N.

I regret omitting from my supplementary list in the 1931 part of the Transactions the following :—

*Milax gagates* v. *rava*, 15 N. (S.C.S.)

,, ,, v. *plumbea*, 15 N. (S.C.S.)

*Agriolimax laevis*, 15 N. (S.C.S.)

*Helix aspersa* v. *nigrescens*, Div. 15 N. (S.C.S.)

Erratum.—*Limax maximus* v. *fasciata* : read 15 N. instead of 15 S, in 1919 list.

## ORNITHOLOGY.

### Migration of Birds in North Lincolnshire during the Autumn and Winter of 1932—1933.

G. H. Caton Haigh, F.Z.S., M.B.O.U.

The weather during the early part of the autumn was very unpropitious for the passage of the smaller birds, being on the whole stormy with the prevailing winds between W. and S. Little migration took place during September; but in October there was a considerable passage on the 5th and 6th, and again a much heavier one from the 19th to November 1st.

On Sept. 1st at North Cotes several Green and Common Sandpipers, a single Godwit and also a Pied Flycatcher and a Swift. On 2nd I saw a Greenshank and I heard from one of the wildfowlers that he had seen four, one of which he had shot. He also informed me that a flock of fourteen had frequented one of the Plover decoy-pools in Tetney Cow Marsh

for some time. The Pied Flycatcher seen on the first still remained and stayed till the 9th, a few Whitethroats also were present. On 3rd a Swift and three Kingfishers On 4th I saw three Lesser Black-backed Gulls flying over the park at Grainsby with a number of Herring Gulls. On 5th two or three Swifts, a few Willow Wrens and two Yellow Wagtails. On 7th a flock ot Teal rose from the Fleet drain at Grainsby, and from it I shot a Teal, and also a Gargany. I did not recognise the latter until it was picked up, but on seeing the same flock again I judged that there were at least three or four Garganys amongst them. The flock was not seen again. On 8th I saw three or four Whitethroats and single birds of the Goldcrest, Willow Wren, Redstart and Wheatear. On 9th two Ruffs. On 10th a few Willow Wrens, Redstarts, Whitethroats, Wheatears, a single Spotted Flycatcher, and a flock of Golden Plovers; a Rose-coloured Starling was seen by Mr. J. H. Stubbs in a grass field in North Cotes village among a small flock of common Starlings. On 12th and 13th a few Whitethroats and Willow Wrens. On 15th Peewits were travelling to N.W. till 1-30 o'clock, I also saw three Greenshanks. On this date also an example of the Yellowshank *(Totanus flavipes)* was shot by Mr. J. H. Stubbs at his plover decoy in Tetney Cow Marsh. This is an addition to the list of Lincolnshire birds. On 16th again a few Willow Wrens and Whitethroats; and Peewits were coming in till 11-30. On 17th a few Whitethroats, two Goldcrests, a flock of a dozen Ringed Plovers and two Turnstones. Peewits were coming in in large numbers till 12-30 and in small quantities till late in the afternoon. On 19th the first Geese appeared, flocks of 11 and 5 being reported going N.W. I saw a flock of eighteen Shelducks, also six Greenshanks. A few flocks of Peewits early in the morning but none later and the same again on the mornings of 20th, 22nd, 23rd, 24th and 28th. A few Geese also passed over on 22nd, 23rd and 24th. Wigeon arrived on 23rd, when one of the wildfowlers saw a flock of a dozen and shot seven with his punt gun. On 24th I saw a Pied Flycatcher, six Wigeon and a large flock of

Knots, and Mr. F. Stubbs saw a flock of a dozen Little Stints on the edge of Tetney fitties. On 26th I saw a single Chiff-chaff and a Redstart, also a Ruff and a Whimbrel.

On Oct. 3rd a flock of Redwings passed over Grainsby. On 5th the first heavy migration of the season commenced. Many Redwings, Goldcrests, Robins and Grey Crows, and I saw a Fieldfare, Chiff-chaff, Ring Ousel and two Scaup Duck. On 6th many Starlings going N.W., a good many Mistle Thrushes, Blackbirds and Hedge Sparrows, a few Grey Crows and Peewits, and I saw two Goldcrests, a Redstart, a Mealy Redpoll, two Merlins and seven Wigeon. On 10th Redwings, a few Peewits and two Goldcrests. On 12th I shot a Yellow-browed Warbler and saw the first Rock Pipits, also a few Peewits and Golden Plovers. On 13th a great diminution in the number of Swallows took place but I saw six on 18th, three or four on 21st and two on 25th. On 15th one of the wildfowlers saw a flock of four Arctic Skuas near Tetney Haven. On 18th about a score of Fieldfares, two Goldcrests and a few Peewits. On 19th commenced the greatest migration of the year. Peewits and Starlings passing to N.W. by thousands at times almost in a continuous stream. Larks were also travelling but in much smaller numbers than the two last-named species. A party of five Jays also passed over going N.W. and a Green Woodpecker was seen in a hedge near the coast and remained in this treeless district till the 22nd. A few Golden Plovers were travelling with the Peewits; and three Swans, the first of the winter, were seen. On 20th Peewits and Larks were still travelling but in greatly reduced numbers and the flight of Starlings had ceased altogether. In the hedges a few Great and Blue Tits, Blackbirds, and a single Goldcrest. On 21st a few Peewits, Grey Crows and Chaffinches, also Fieldfares, Redwings, Thrushes and Blackbirds and I saw a couple of Water Rails. On 22nd a S.W. gale interfered with the flight. A few Peewits were travelling and I saw a Pomatorhine Skua, a Snow Bunting and a Stonechat. On 24th the flight still continued but was not very strong. A few Peewits, Larks, Fieldfares, Grey

Crows, Rooks were going N.W.; in the hedges were Great Tits, Tree Sparrows and Wrens, and I shot an example of Eversmann's Warbler. This bird is not known to have previously occurred in Lincolnshire. On 25th again an immense flight of Peewits and Starlings; also Larks, Chaffinches and Rooks in small numbers, a single Arctic Skua, and a small flock of Geese. On 26th much migration but no species in very great abundance. The following were all moving: Peewit, Lark, Rook, Grey Crow, Twite, Greenfinch, Chaffinch, Snow Bunting, Fieldfare, Thrush and Blackbird. Two flocks of Swans numbering 24 and 22 respectively, all adult birds. On 27th Fieldfares, Redwings, Blackbirds, Mistle Thrushes, a couple of Woodcocks, a few Peewits, and some large flocks of Knots. On 28th the same species and in about the same numbers, but accompanied by thousands of Starlings coming in from S.E. and flying close to the ground in the teeth of a gale from N. with heavy squalls of rain. I also noticed a few Rock Pipits, two Curlew Sandpipers and a Turnstone, and I shot a very white Mealy Redpoll. On 29th many small flocks of Geese were moving. On 31st multitudes of Starlings going N.W. with Larks flying against a strong N. wind close to the ground, the flight lasting all day.

On Nov. 1st another great flight composed chiefly of Starlings and Peewits, but also many Rooks, Grey Crows, Fieldfares and Blackbirds, and I flushed a Jack Snipe on the sea bank. On 31st of October about 500 Geese had arrived at one of their favourite haunts on the North Wolds. By Nov. 2nd these had increased to quite 2,000 and by the 14th to about 3,000, their normal numbers in the district. On 7th again a fairly considerable migration comprising Fieldfares, Blackbirds, Mistle Thrushes, Robins, Goldcrests and Peewits. On 10th Rooks, Great Tits and four White-fronted Geese. On 23rd a considerable arrival of Wood Pigeons. I also heard that a flock of about one hundred Waxwings had been seen at Driby and three of them shot. Subsequently one of these was sent to me for identification. On 24th two Waxwings were shot at North Cotes and about the same date four were

seen at Tetney Lock. A single bird was seen also at North Cotes on 26th, and later single individuals were seen on Dec. 12th and 13th. On 25th between 1,000 and 2,000 Geese passed over Grainsby going S.E. On 30th ten Swans alighted on the fitties near North Cotes Cut and remained for some time.

On Dec. 2nd several flocks of Snow Buntings on the sands at North Cotes. On 9th twelve Brent Geese were seen at Tetney Haven and on 11th four more. On 15th there were about 5,000 Wood Pigeons at Fenby Wood and by 18th these had increased to 8,000 or 10,000, but on the whole Wood Pigeons were not as abundant as usual.

On 10th January, 1933, it was reported that there were about 7,000 Geese on some marshes near the Humber but they only stayed a few days. On 20th large flocks of Snow Buntings on stubbles and grass-land at North Cotes.

From the foregoing notes it will be seen that the migration season of 1932 was above the average in point of interest. It was however a very short one, as owing to the rough and unsettled weather of the greater part of September the principal arrival of the Autumn immigrants was compressed into a period of about five weeks. The severe weather in January did not bring in the usual influx of wildfowl, and, except for a few hundred Wigeon and a few Shelducks, made little difference to the bird life of the Humber mouth. The great blizzard of the latter part of February also did little in the way of driving in of wildfowl, and from the wildfowlers' point of view it was a poor winter. The advent of a number of Waxwings in November and December was interesting, as was also the occurrence of the Yellow-browed Warbler in the middle of October, but the outstanding ornithological events of the year were the appearance of two birds new to the County list, namely the American Yellowshank and Eversmann's Warbler. The latter however is a small and inconspicuous species which might easily escape observation. As I have previously remarked in these notes this part of the coast is becoming yearly less suitable as a haunt of birds owing to the increase of shore shooters and still more to the establishment by the Royal Air Force of an aerodrome and bombing school.

# BIRD NOTES FROM THE GRIMSBY DISTRICT, 1932.

S. A. Cox and R. May.

WINTER VISITORS.

On January 3rd we watched a party of Waxwings feeding on haws on some Grimsby allotments. They seemed equally partial to the hips of the dog rose, and frequently descended to drink from the roadside pools. They were exceedingly voracious. Hips and haws were swallowed whole, and in their eagerness the birds seemed to drop more than they devoured. From time to time they uttered a reeling note, not unlike the trill of a Blue Tit, but weaker and more sustained. Altogether we watched the Waxwings for nearly two hours, mostly at a distance of from six to ten feet, for they seemed quite oblivious to our proximity. Later in the day we disturbed two Green Sandpipers at Freshney Bog, and saw a Dabchick diving in the river. A flock of about forty Snow Buntings passed over Old Clee on the afternoon of the 4th, and on the 5th a Goldcrest was singing in the woods at Weelsby, the earliest date we have ever recorded its song. There were three Pochard and a Tufted Duck on Newsham Lake on the 10th, and two Woodcock were flushed in the adjoining woodlands. On the 31st we visited the Humberstone and Tetney Lock foreshores, and found Rock Pipits fairly numerous near Tetney Haven, where they spent most of their time running about the muddy sides of the drains which intersect the salt marshes. We also had the good fortune to disturb a Short-eared Owl from a patch of rough grass on the foreshore. We followed its flight across country for a considerable time, and once, on a patch of grass-land, it startled a covey of Partridges and a party of Larks by its sudden appearance. Four Geese passed over just before dusk, flying low, and we saw a flock of Snow Buntings, probably several hundreds.

There were twenty-one Pochard and three Tufted Duck on Newsham Lake on February 7th. A week later there were twenty-one Pochard, a Tufted Duck and a Shelduck on this

water. There were also at least sixty Goldfinches roosting in a Portugal laurel in a plantation at Brocklesby. On the 21st we watched a flock of at least ten Hawfinches in a hawthorn hedge at Limber, their loud, robin-like, ticking notes first attracting our attention. Subsequently these birds became very plentiful in the neighbourhood of Limber, and one could see them almost daily during March. On February 27th the Grey Wagtail was seen for the last time by the river-side at Freshney Bog. A Kingfisher was also seen.

Wildfowl were extremely plentiful at Lambert Hill on March 6th. In addition to Mallard and Teal, there were twenty-five Pochard, ten Tufted Duck, four Shoveler and two Wigeon. A week later there were thirty-two Pochard on Newsham Lake.

Bramblings stayed much later than usual in their winter haunts. One was feeding with Chaffinches in a larch at Freshney Bog on April 3rd, and another in an alder there on the 9th. On the 24th we saw a flock passing over Mausoleum Wood, and finally, on the 25th another flock was seen at the same place. Only once have we known them to stay later—in 1928—when we saw Bramblings at Croxby Pond on the 29th. Redwings and Fieldfares also remained well into the spring. Two Redwings were seen at Weelsby on the 20th, and a party of Fieldfares at Limber on May 4th.

Spring Migration.

The early days of April were very blustery and cold, but on the 10th the weather was milder though still very rough, and three Swallows and two Sand Martins were seen at Lambert Hill. On the 12th the Willow Warbler returned to Hendale Wood. On the 18th a Hobby appeared in the same locality. It passed over Hendale Lodge several times, travelling at a great height. Unfortunately it did not stay to nest. The Cuckoo arrived at Limber on the 24th, and the Tree Pipit on the 25th. A Yellow Wagtail passed over Old Clee and the Blackcap appeared at Limber on the 26th. A Sedge Warbler was chirping in the osiers by Humberstone Beck on the 28th, and on that day the Turtle Dove appeared at Limber, our

earliest record for it. The Chiff-Chaff, normally our earliest spring visitor, failed to appear at Mausoleum Wood, and it was not until the 30th that one was heard at Brocklesby Nurseries. The Whitethroat appeared on the same day at Limber.

On May 1st several House Martins were seen over the Bain at Tattershall. The Wheatear appeared at Limber on the 3rd, and the Lesser Whitethroat on the 4th. Many of our summer birds which normally arrive during the first week of this month were very late, owing doubtless to the bitterly cold and windy weather from the 1st to the 7th. A Whimbrel passed over Limber after dark on the 7th, and on the 8th a number of Swifts were seen at Newsham Lake. Two Whinchats appeared in their nesting haunts at Tetney on the 8th. On the 9th the Reed Warbler was heard at Newsham Lake, and the Garden Warbler and Wood Warbler in Cottagers' Dale wood. The latter did not stay to nest, but passed on almost immediately. The Spotted Flycatcher returned to Limber on the 15th. After we had almost given up hope we heard the Nightingale on the 22nd in a young plantation near Pelham Pillar. Although there was a perfect deluge of rain at the time, the bird was singing gloriously. The reeling of the Grasshopper Warbler was first heard at Caen Valley on the 25th, also a very late arrival. As a rule about six pairs of Grasshopper Warblers occur within a twelve-mile radius of Grimsby, but only two pairs were recorded this spring. There were three Little Terns fishing in the tide at Humberstone Fitties on the 29th. Like the Ringed Plover, these birds still visit their old nesting haunts each spring, but it is very doubtful now whether they will ever breed there again, owing to the encroachment of bungalows on their territory, a strip of shingle, some 150 yards in length and a few yards wide. Both species nested as recently as 1927, when unfortunately their eggs were inundated by a spring tide, but the Ringed Plover at any rate nested a second time.

A Corn Crake was heard in the early hours of June 11th at Thornton Curtis. Neither the Quail nor the Common

Sandpiper appeared in its accustomed haunts during the period of spring migration, nor did we encounter the Nightjar, though we heard that it had nested as usual at Scotton Common.

NESTING.

A visit was paid to one of the Cuxwold rookeries on March 12th, and after several empty nests had been examined, one in a Scots pine was found to contain its first egg. A Tawny Owl was sitting on two eggs in a hollow elm at Limber on the 16th, and later we found many nests of this species. On the 20th we visited the Appleby heronry. The wood in which the Herons nest is composed almost entirely of oak, the smallest trees of which are seventy feet in height. The surrounding district is ideal for the requirements of Herons and waders in general, for the Ancholme is barely a mile away, and the low-lying, marshy fields adjoining the heronry provide suitable nesting places for Snipe, Lapwing, Redshank and Mallard. Prior to 1928 the Herons nested in a neighbouring beech-wood, but the felling of trees caused them to forsake it. One nest in an oak was found to contain four young Herons, about ten days old. It was a huge structure, two yards across, and was composed of large sticks, lined with elder twigs and dead stems of hemlock, both of which occur plentifully in and about the heronry. Another oak held two Herons' nests, each of which was found to contain four eggs. We computed that there were at least ten pairs of Herons nesting, which is an increase of three pairs on the previous year. A Long-eared Owl was sitting on five eggs in an old Magpie's nest in a larch at Brompton Dales on the 27th. Two days later another Long-eared Owl was disturbed from an old Carrion Crow's nest in a larch in Jubilee Covert, and this was found to contain four eggs. Both broods were reared successfully.

On April 24th we saw a Coot with five chicks on a pond near Brocklesby Nurseries, a remarkably early record.

On May 1st the nest of a Long-tailed Titmouse in a honeysuckle-covered hawthorn at Peak's Covert contained

two eggs. A Coal Tit was nesting in an old squirrel's drey at Newsham Lake on the 8th. On the 21st two Lesser Whitethroats' nests were found amongst the tangled undergrowth in the old brickyard at Limber, both containing eggs.

During the spring and early summer months, in collaboration with Mr. K. Brown of Goxhill and Mr. J. H. Davey of Thornton Abbey, we attempted to ascertain the relative distribution and status of the Sparrow-Hawk and Kestrel in north Lincolnshire during the breeding season. Thirteen parishes were visited, and whenever a bird of either species was seen, every effort was made to locate its nest. The result of these investigations was as follows :—

SPARROW HAWK.

| *No.* | *Date.* | *Parish.* | *Situation and height.* | *Contents.* | *Remarks.* |
|---|---|---|---|---|---|
| 1. | May 28th | Weelsby | Hawthorn, 25 ft | 4 eggs. | Destroyed |
| 2. | May 28th | Goxhill | Willow, 10 ft. | 4 eggs. | Successful |
| 3. | June 3rd | Wootton | Larch, 29 ft. | 5 eggs. | Fate unknown |
| 4. | June 3rd | Goxhill | Hawthorn, 10 ft | 5 eggs. | Successful |
| 5. | June 5th | Caistor | Austrian Pine, 45 ft. | 5 eggs. | Destroyed |
| 6. | June 5th | Thornton Abbey | Scots Pine, 23 ft. | 5 eggs. | Successful |
| 7. | June 6th | Limber | Larch, 30 ft. | 4 eggs. | Destroyed |
| 8. | June 8th | Ulceby | Oak, 34 ft. | 3 eggs. | Destroyed |
| 9. | June 9th | Caistor | Spruce Fir, 40 ft. | 4 eggs. | Successful |
| 10. | June 9th | Limber | Larch, 40 ft. | 5 eggs. | Destroyed |
| 11. | June 11th | East Halton | Oak, 20 ft. | 5 eggs. | Fate unknown |
| 12. | June 12th | Croxton | Larch, 18 ft. | Broken eggshells in nest | |
| 13. | June 12th | Brocklesby | Spruce Fir, 40 ft. | 5 eggs. | Successful |
| 14. | July 17th | Limber | Spruce Fir, 60 ft. | 4 eggs. | Successful, but two eggs infertile |
| 15. | July 23rd | Humberstone | Oak, 30 ft. | Parents feeding young | |
| 16. | Aug. 7th | Swallow | Spruce Fir, 20 ft. | Young hawks out of nest | |

KESTREL.

| | | | | | |
|---|---|---|---|---|---|
| 1. | June 2nd | Brocklesby | Hollow Wych Elm, 35 ft. | 5 eggs. | Successful |
| 2. | June 3rd | Thornton Abbey | Oak, old Magpie's nest, 33 ft. | 5 eggs. | Successful |
| 3. | June 5th | Goxhill | Willow, old Magpie's nest, 20 ft. | 5 eggs. | Successful |
| 4. | June 10th | Goxhill | Oak, old Carrion Crow's nest, 17 ft. | 5 young. | Successful |
| 5. | June 13th | Humberstone | Scots Pine, old Carrion Crow's nest, 55ft. | Nest inaccessible, young safely reared | |

| *No.* | *Date.* | *Parish.* | *Situation and height.* | *Contents.* | *Remarks* |
|---|---|---|---|---|---|
| 6. | June 13th | Barrow-on-Humber | Sweet Chestnut, old Carrion Crow's nest, 45 ft | 5 eggs. | Fate unknown |
| 7. | June 14th | Croxton | Hollow Ash, 17 ft. | 3 young. | Destroyed |
| 8. | June 15th | Barrow-on-Humber | Larch, old Carrion Crow's nest, 28 feet | 4 eggs. | Fate unknown |

It will be seen from the above that the Sparrow-Hawk appears to be twice as plentiful as the Kestrel in this part of the county, and that the percentage of successful nests in each case was at least fifty. It also seems that the larch and spruce fir are the Sparrow-Hawk's favourite nesting trees.

A Sedge Warbler's nest in a hawthorn at Freshney Bog contained four eggs on June 4th. On the 5th, during the early hours of the morning, on the occasion of the thirteenth annual all-night ramble of the North Lincolnshire branch of the British Empire Naturalists' Association, we again witnessed the curious breeding flight of the Woodcock near Pelham Pillar, which suggested the probability of its nesting in the adjacent woodlands. The Sedge Warbler and Grasshopper Warbler sang continuously throughout the night, and the Nightingale treated the party to a wonderful solo effort just before dawn. Young Long-eared Owls were calling in Brompton Dales near the site of this year's nest. Their note sounds exactly like a rusty plough wheel that requires oiling, and carries for a tremendous distance. On a still night it can be heard for over a mile. On the evening of the 6th we visited three Bullfinch nests at Little Brocklesby. One in a bamboo contained three eggs, another in a cypress five eggs, and the third in a Portugal laurel four eggs. We also saw a Blackcap's nest, with four eggs in a bramble clump. Two Barn Owls' nests were seen on the 10th. One in a hollow elm at Thornton Abbey contained five eggs, the other in a hollow willow at Goxhill had young owlets. On the 11th at Freshney Bog we watched a Marsh Tit feeding young in a rotten oak branch, which had fallen from the parent tree and was suspended rather insecurely across the roots of a sycamore sapling, two feet from the ground. This is only our second

record of the Marsh Tit nesting in the Grimsby district, though it doubtless does so frequently in our damper woodlands. On the same day we visited Humberstone Fitties, and after an unsuccessful search for nests of the Ringed Plover and Little Tern, wended our way inland, and saw an Oystercatcher fly up from a large bean-field, calling loudly. While we were debating the possibility of their nesting a second bird appeared, and we felt confident from their agitation and their presence inland that such must be the case. A prolonged search revealed a circular scrape in the ground which might have been a nest, and just as dusk was falling, we saw two chicks crouching beneath the shelter of a broad-bean plant. Once they found they had been discovered they ran rapidly, and gave a faint repetition of their parents' cries. Their plumage was beautifully marbled, and they appeared to be about three days old. This is our first record of an Oystercatcher breeding near Grimsby. We suspected it as long ago as 1926, but had been unable hitherto to obtain confirmation. There were twenty-four adult Shelduck on the fitties at Saltfleet on the 12th, and one pair were accompanied by twenty-one chicks. A brood of young Jays were disturbed from a honeysuckle-covered ash at Linwood on the 22nd.

On July 2nd we watched a pair of Whinchats feeding young at Tetney. These young, which had obviously recently left the nest, were perching on tall hogweeds. A Reed Warbler's nest at Freshney Bog was located on the 3rd, not quite completed, and on the 12th it contained four eggs. On the 17th we watched a Spotted Flycatcher feeding four fully-fledged young on the branch of an oak at Coney Green. We heard a Lesser Whitethroat in the old brickyard at Limber, and found that one pair at least had reared a second brood. We also saw the nest of a Bullfinch with four young in a buddleia at Little Brocklesby, and later inspected the site where a Coal Tit had nested behind the loose bark of a cedar, eighteen inches from the ground, in Mausoleum Wood. In a Douglas fir there we saw the nests of a Bullfinch and Hawfinch, the former six feet from the ground, the latter about

fifty feet. The nest of the Hawfinch had been robbed, probably by a Jay, but the birds must have nested quickly elsewhere, for two young Hawfinches were seen in the wood in the latter part of the month.

Curiously enough, on August 14th, a Goldcrest's nest containing young, was found in the same Douglas fir. We doubt whether any tree has harboured so many distinguished guests during a single season. The belated nest of a Tree Pipit at Limber contained three young fledglings on August 3rd.

AUTUMN MIGRATION.

A young Cuckoo was seen at Limber on August 6th, and a Yellow Wagtail and a Whinchat at Freshney Bog. Another young Cuckoo was seen at Weelsby on the evening of the 8th. A Grasshopper Warbler was singing in Mausoleum Wood on the morning of the 11th. It is most unusual to hear this warbler singing thus late in the season, especially in a spot far removed from its nearest known breeding haunts. Another young Cuckoo was seen at Limber on the 13th. Solitary Whimbrels passed over Old Clee on the 15th and 18th, and a Yellow Wagtail was seen on the 17th. Whinchats were seen at Limber on the 17th and 18th. At this time of the year they are almost invariably to be seen perching on the stooks in harvest fields. The Turtle Dove and the Lesser Whitethroat were last heard at Limber on the 20th, and on the 22nd the first Wheatear returned—one of the first signs of the approach of autumn. On the same date there were nine Herons, a Green Sandpiper and three Common Sandpipers at Lambert Hill, and a Kingfisher was seen at Newsham Lake. On the 27th a Yellow Wagtail was seen at Old Clee, and a Cuckoo was observed flying from stook to stook in an oat-field at Cuxwold.

On September 3rd four Wheatears were seen at Old Clee and three Herons and two Common Sandpipers at Lambert Hill. On the 4th there were three Snipe, two Herons and a Common Sandpiper. A Yellow Wagtail passed over Old Clee on the 5th, and there were four Herons and a Common Sandpiper at Newsham Lake. Two Whimbrel passed over Limber

on the 6th. There were two Common Sandpipers and fourteen Snipe at Lambert Hill on the 7th. The main body of Swifts had departed during the first week of August, but on September 8th a solitary Swift was flying over Tattershall Castle in the evening. The Spotted Flycatcher and Willow Warbler were last seen on the 13th at Limber, the latter still in faint song. The Yellow Wagtail was last recorded at Old Clee on the 15th. A Wheatear was seen at Limber on the 17th, and on the 18th there were two Tufted Duck at Newsham Lake, and eighteen Snipe at Lambert Hill. Sand Martins were also last seen at the latter place, also a belated Sedge Warbler. Whimbrel were also seen for the last time at Cleethorpes on the same date. On the 20th the first Geese appeared. A flock of about fifty passed over Limber, travelling south-east. On the same day the Whitethroat was seen for the last time. The first frost occurred on the 21st, and the last Wheatear was seen at Limber. The following day was sharper, with ice on open water, and a large flock of Redpolls passed over Old Clee early in the morning. They were travelling in a westerly direction at a great height. There were four Herons and fifteen Snipe at Lambert Hill on the 25th, and three Snipe at Newsham Lake. On the 27th the Grey Wagtail appeared at Limber. The evening of the 28th was beautifully calm, and shortly after dusk a party of Redwings passed over Old Clee, our earliest record of their arrival in Britain. Only once before, in 1923, have we known a September Redwing. The immigration was resumed a few days later, and continued almost nightly until November 11th.

The Brambling and Fieldfare also created new records by their early appearance. A Brambling was seen in an ash at Limber on September 29th, and on October 2nd a Fieldfare was seen with a party of Mistle Thrushes in a plantation in Brocklesby Park. On the latter date there were eighteen Snipe and a Shoveler at Lambert Hill, and two Snipe at Newsham Lake. A solitary Redstart was seen at Limber on October 4th. It was very blustery on the 8th. Oystercatchers were abundant at Humberstone Fitties, and there

were three Sanderlings on the mud. A Bar-tailed Godwit was seen on the sand-dunes, apparently exhausted by the gale. On the 9th there were five Herons, seventeen Snipe and a Shoveler at Lambert Hill. Two Goldfinches were feeding in the tops of the birches near Newsham Lake, and there were two Green Sandpipers by the lake side. A belated Common Sandpiper was feeding near the mouth of the Tetney Haven on the 15th, and about six Rock Pipits were seen about the muddy sides of the intersecting drains. A Grey Plover was also seen with a party of Knot and Dunlin. On the 16th there were seven Herons and twelve Snipe at Lambert Hill, and a Grey Wagtail at Newsham Lake. Swallows stayed remarkably late at Old Clee, where they were seen daily until the 22nd. On that day the first Snow Buntings appeared, two being seen by a pool on Humberstone foreshore. On the 23rd there were four drake Shovelers and nine Snipe at Lambert Hill, and two Herons at Newsham Lake. Just before dusk eight House Martins were seen over Laceby, our last record of their presence. A solitary Crossbill was seen at Limber on the 25th, and on the 30th the first Wigeon appeared at Lambert Hill. There were also present a Heron, a Shoveler and six Snipe. A party of five Redpolls were feeding in the birches near Newsham Lake.

Geese were more plentiful during the autumn than ever we have known. There were about twelve hundred feeding on the wolds near Hendale Wood on October 31st.

The first invasion of foreign Wood Pigeons occurred on November 4th. During a visit to Freshney Bog on the 5th a pair of Grey Wagtails were disturbed from the river-side, and a Kingfisher was seen several times. In a secluded part of the Freshney six Dabchicks were diving, a Moorhen was swimming about and a Grey Wagtail was tripping about among the water-plants. Suddenly rather a long, red beak poked out from among the grass on the river bank, and presently its owner—a Water Rail—emerged, and after sundry flickings of the head and tail, and other Moorhen-like motions, slid into the water. Later two Snipe were disturbed from the

bog, and a Green Sandpiper flew up from the river-side at dusk. There were eight Shovelers at Lambert Hill on the 6th, three being drakes in full plumage. There were also two Herons and six Snipe, and a Woodcock in Irongate Wood. A Golden Plover passed over Old Clee on the 11th. On the 13th we visited Humberstone Fitties, and saw several Hooded Crows for the first time since early spring. We also picked up a dead Short-eared Owl in the same patch of rough grass where we disturbed one early in the year. There were very few Snow Buntings about, but Rock Pipits were fairly numerous about Tetney Haven. We saw seven very dark Geese flying low over the Haven in a northerly direction, most probably Brent Geese. We also saw fifteen Shelduck flying down the Humber, and about 150 Oyster-catchers and hundreds of Knot standing at the edge of the incoming tide. There were seven Shovelers at Lambert Hill on the 20th, and one Tufted Duck at Newsham Lake. A Grey Wagtail and many Redshanks were feeding by the river-side at Little Coates on the 26th. There were also two Dabchicks diving in the Freshney. Just after sunset a Green Sandpiper was flushed, and a few minutes later four Dunlin skimmed by up the river, our first record of seeing this maritime wader at Freshney Bog. Another Dunlin was probing the mud on the opposite bank, only twelve feet away.

On December 3rd at the same place a Grey Wagtail and a Green Sandpiper were feeding together at the water's edge. There were two Tufted Duck and nine Pochard at Newsham Lake on the 4th, and a Peregrine was seen flying down the lake in the direction of Killingholme, afterwards bearing left, as if for Zincs Covert. Needless to say this is a very welcome addition to the birds of Newsham Lake. On the 10th a solitary Waxwing was feeding in a guelder-rose by Humberstone Beck, its low, reeling trill first proclaiming its presence. This bird, like those seen early in the year seemed absolutely fearless, and it gorged itself to repletion with the berries of the guelder-rose, which it swallowed whole. Shortly afterwards a

Water Rail was seen swimming in the beck, and as there was no cover close at hand it promptly took flight, an uncommon habit with this species, and then plunged into a tangled thicket of brambles and dead aquatic vegetation, from which it was impossible to disturb it. On the 18th we saw four Turnstones on the seaweed-covered rocks near Goxhill Haven. There was also a Pochard feeding with about sixty Coot in a disused flooded brick-pit. We saw eighteen Shelduck flying down the river, and two Bar-tailed Godwits standing at the edge of the tide. During a visit to Freshney Bog on the 24th, scores of Redshank and several Snipe were disturbed, a Grey Wagtail was seen by the river-side and a Dabchick was diving in the Freshney. A Heron was also disturbed from the bog. On the 26th a pair of Stonechats were flitting about a hedge-row at Tetney, our first record for the immediate vicinity of Grimsby. Snow Buntings were very plentiful near the coast, and a Rock Pipit was seen at Tetney Haven. A flock of Goldfinches were seen at Tetney. At Lambert Hill on the 27th there were eight Pochard, a Tufted Duck and five Pin-tails. One of the latter was a drake in full plumage, the others being either ducks or immature birds. This is another welcome addition to the birds of the Brocklesby district. Neither the Twite nor the Jack Snipe had reached its winter haunts by the end of the year, nor, apart from the Pintail, had any rare wildfowl appeared on the Brocklesby lakes. This could easily be accounted for by the mild, open weather that we experienced throughout the autumn.

1932 must undoubtedly rank as the most interesting and satisfactory year for bird observation that we have had since 1929. During the year we made observations regarding no fewer than 124 species.

# BIRD NOTES FROM THE SKEGNESS DISTRICT.

FRANK HIND.

On November 29th, 1932, I saw near Trusthorpe a Marsh Harrier perched on a telegraph-pole.

During the winter many more Kestrels than usual were with us in this locality—on the other hand, the Grey Crows were fewer in numbers than usual, the result no doubt of the exceedingly mild weather which prevailed—and though many skeins of Geese passed they were by no means so numerous as they commonly are.

At all times of the year Starlings are seen in our marsh-lands in large numbers, and in the autumn particularly great flocks are met with, this past season showing no reduction in their numbers.

On April 3rd I saw the first Martin, but more than a fortnight passed before Swallows were noted. Both these species remained much later than usual this past autumn and their numbers were greater than they have been for several years. In the evenings huge swarms of old and young birds dashed around the local clay-pits before settling down to roost on the reed stems bordering the pools. On September 13th at 7-15 p.m. there was a most remarkable assembly. On May 6th I saw the first Swifts, and by the 14th good numbers had arrived at their old breeding quarters.

Early in May I was shown a Blue Tit's nest in the lead barrel of a cottage pump; several eggs were laid, but the birds had to vacate the nest, as it was necessary to obtain water from the pump. I found another Blue Tit's nest with eggs, near Somersby, built most ingeniously inside the lock staple of an iron gate.

Cuckoos were seen and heard near Skegness but very infrequently during the past season; but I saw and heard many in the hill country. At South Ormsby, for instance, four of

them were calling together. In this same region of woodland many Magpies and several Jays may be seen on most spring and autumn days, despite the "thinning off" by gamekeepers.

Herons still frequent our dike and pit sides, but by no means in such numbers as formerly, and I believe the once flourishing heronry near Welton-le-Wold is much reduced or almost deserted.

On September 18th near Belchford I saw a small flight of early arriving Fieldfares; and on October 31st, at 10 a.m., a flight of Grey Crows passing inland from oversea.

On the occasions of my few visits to Gibraltar Point, ducks and shore waders showed a diminution in number compared with former years. No doubt they are much disturbed by the crowds who visit this once quiet spot.

## BIRD NOTES.

Guillemot. On February 29th, a storm-driven bird was killed by contact with telegraph wires at Wragby, and brought to the Lincoln County Museum by Mr. W. Broxholme.

Great Crested Grebe. Mr. J. R. Oxby reports them occurring on the Witham, near Washingborough, September 17th.

Woodcock. Capt. W. A. Cragg says: "I flushed a Woodcock at Spanby on September 22nd. This was certainly not a home bred bird. The date is the earliest I have known, but the east winds and moonlight nights have no doubt brought over an unusually early flight".

Kingfisher. Mr. A. E. Collis reports one fishing from a derelict barge in Brayford, Lincoln, October 7th. It was seen on subsequent days, an unusual occurrence, in a busy part of the City.

Wild Geese. Mr. F. Baker saw a flight of about thirty travelling over Lincoln in a south-westerly direction, October 28th.

## BARN OWL CENSUS, 1932.

The appeal for information regarding the nesting of the Barn Owl in Lincolnshire, made in Transactions, 1931, resulted in the following notes:

Mr. G. R. Porter, of Benington, near Boston, writes—"I know of five pairs of Barn Owls, by my own observation and enquiry, that have nested within a radius of ten miles of where I live. There are plenty of nesting sites in the wooded districts, but in other parts of the district they have become extremely scarce. There has been a decided decrease of the Barn Owl in the district during the last twenty years. No doubt the reason is that much grass-land has been ploughed up for early potato growing and that has been accompanied by the taking up of many hedges and felling many trees, many of them hollow. Villages which could raise a few pairs years ago, now have none".

Messrs. R. May of Limber and S. A. Cox of Grimsby report: "A nest in a hollow elm at Thornton Abbey was visited on June 10th. The nest was twenty feet from the ground and contained five eggs. Another nest was noted on the same day in Goxhill Marshes, in a hollow willow, four feet from the ground. There were several young in the nest, but they were out of reach. A pair frequented Old Clee throughout the summer, but their nest was not found. Another pair were frequently seen at Limber, but their nest was not located. The numbers of Barn Owls in this area appear to be constant, but most of the available nesting sites seem to be occupied by Jackdaws".

Mr. Nevile Rowley and Mr. D. Rawding report the discovery of a nest at Cammeringham, in a hollow tree. They saw the bird, but were unable to reach the eggs.

The Barn Owl bred regularly in the Monks Abbey grounds at Lincoln until 1930. The birds were seen in 1931, but did not remain to nest. They were not observed to visit the site in 1932.

THOMAS JOHNSON, BOTANIST AND ROYALIST. By H. Wallis Kew and H. E. Powell. Cr. 8vo, pp. xii, 151, 13 pls., 10 text-figs. Longmans: London, 1932. 8s. 6d.

Members of the L.N.U. have read with interest the papers in the Transactions on Martin Lister and Ray written by our Past-President Mr. H. Wallis Kew and have appreciated the care he has taken in investigating the work of our naturalists of earlier days. They will now be pleased to have the opportunity of acquiring a more important example of his work written in conjunction with Mr. H. E. Powell, Librarian, Royal Society of Medicine.

Thomas Johnson (*c.* 1600-1644) is described as "Among those whom we rightly regard as the fathers of British botany". He was an apothecary in London, who had been born in Yorkshire, and had resided in Lincolnshire during some part of his boyhood. In 1626 he travelled in the northern parts of England, when among other places he visited Nettleton Moor, near Caistor. His "Very much Enlarged and Amended" edition of Gerard's Herball was the work which established his reputation; but his "Mercurius Botanicus" and other small works were of greater importance, for besides comprising what is regarded as the first British Flora, they were the first publications in Britain which described botanical journeys, and enumerated the plants of any one well-defined area, in this country. The authors have spared no pains in their investigations regarding the life and work of Johnson, and from the materials brought together they have produced a most careful account.

The details of his several journeys, with the names of the plants he found, and the extracts from his works written in the quaint phrases of his time, make most delightful reading. Among the numerous illustrations, some are reproductions of the figures of plants that illustrated these old writings.

At the time of the Civil War Johnson was one of those London Royalists who retreated to the King at Oxford, and there he was created M.D. As a Lieut.-Colonel in the Royalist Army he rendered distinguished service in the defence of Basing

House, where on September 14th 1644, he was shot in the shoulder, and died a fortnight later.

A fine account of the siege is given, and we congratulate Mr. Kew and Mr. Powell on the production of a volume which is worthy of a place in the library of every naturalist.

Insect Behaviour. By Evelyn Cheesman, F.E.S., F.Z.S. pp. 189, text illustrations. Phillip Allan & Co., London. 4s. 6d.

A volume of definite interest to Entomologists in particular and to Naturalists generally. In connection with the behaviour of insects there are innumerable problems yet to be solved, but the author has explained many phenomena, both complex and simple. The chapters deal successively with the many phases of the subject, and it is evident that they are by one who has watched the actions of the living insects of the various orders.

It is a book to be welcomed, both entertaining and instructive and charmingly written.

Bees, Wasps, Ants & Allied Insects of the British Isles. By Edward Step. pp. 238. Illustrated. Frederick Warne & Co., London. 10s. 6d.

This volume is one of the popular "Wayside and Woodland Series" and the last written by the author who passed away a few weeks after completing the MS. There are 44 plates in colour showing 470 figures, 67 plates showing 170 photographic reproductions, and text illustrations, also 64 wing maps. The great amount of material brought together into this volume in highly interesting form will recommend it to many readers as an introduction to the closer study of these insects.

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It is said that to pluck an Orchis is to kill the plant. Regarding this Miss Stow wrote to Dr. Tahourdin who in reply referred to Mr. Oxenden's familiar couplet—

Orchis *cut* is Orchis still,
But Orchis *plucked* is Orchis *nil.*

He considers that *all* flowers should be cut as the act of plucking jars the whole organism. In the case of Orchis, Hanbury and Marshall ("Flora of Kent" whence the above quotation is taken), insist that pulling will probably tear off the next year's tuber and destroy the plant. A.S.

BRITISH MUSEUM